



FRIDAY, JUNE 10, 1881.

The Ames Automatic Car-Coupler.

Our readers, like ourselves, doubtless have seen so many impracticable self-couplers which have been proposed by inexperienced inventors that they have begun to despair of ever seeing any which will fulfill the required conditions. It therefore gives us much pleasure to give illustrations of one which has been thoroughly tried, and which those who are best able to judge pronounce an entirely practicable invention. The Ames coupler, which we illustrate, has been applied on the Lake Shore & Michigan Southern Railway by Mr. Kirby, the Master Car-Builder, who sends us the following description of it:

"At the solicitation of several gentlemen, prominently connected with different lines of railway, I forward to you

bar. A loop made of $3\frac{1}{2} \times \frac{1}{4}$ -in. iron is welded into the back end of the draw-bar, thereby avoiding the troublesome shearing off of flat keys. The followers are made of hammered iron 6 in. wide, $1\frac{1}{2}$ in. thick. The whole is designed to maintain that strength now required to withstand the increased power of locomotives, and consequently largely increased number of cars in a train; the two springs add a trifle to first cost, but more than compensate by the saving of draw-bars, springs and attachments. These springs will resist 16,000 lbs. before closing, so that a force of 32,000 lbs. is sustained without harm; the same is true and valuable in starting, when the load being too heavy for the locomotive, the engineer is obliged, as he expresses himself, to 'jump at it,' in order to start the train. If the springs close then the links and pins suffer.

"How much of the damage and loss railway companies have sustained the past winter by trains breaking apart is attributable to a form of continuous draw-bar in use, it would be difficult to say. I refer to that particular style which, by the recoil of one draft spring, in starting a train, impels that particular car a given distance, when the draft falls on the rigid rod, and so on through the train. If this theory is incorrect, I shall be happy to be corrected; but from the fact

each other when the cars come together. This is important.

"2. That the coupling-bar protects itself by receding within the drawhead when it comes in contact with obstinate obstacles, such as drawbars, posts, etc.

"3. That the uncoupling device is simple, easily handled and out of the way, and that the cars can be readily uncoupled, even though rails, lumber, etc., should be loaded across from one car to the other.

"4. That, as the bars play over each other in running, they are almost noiseless, and hence chafe to wear scarcely any.

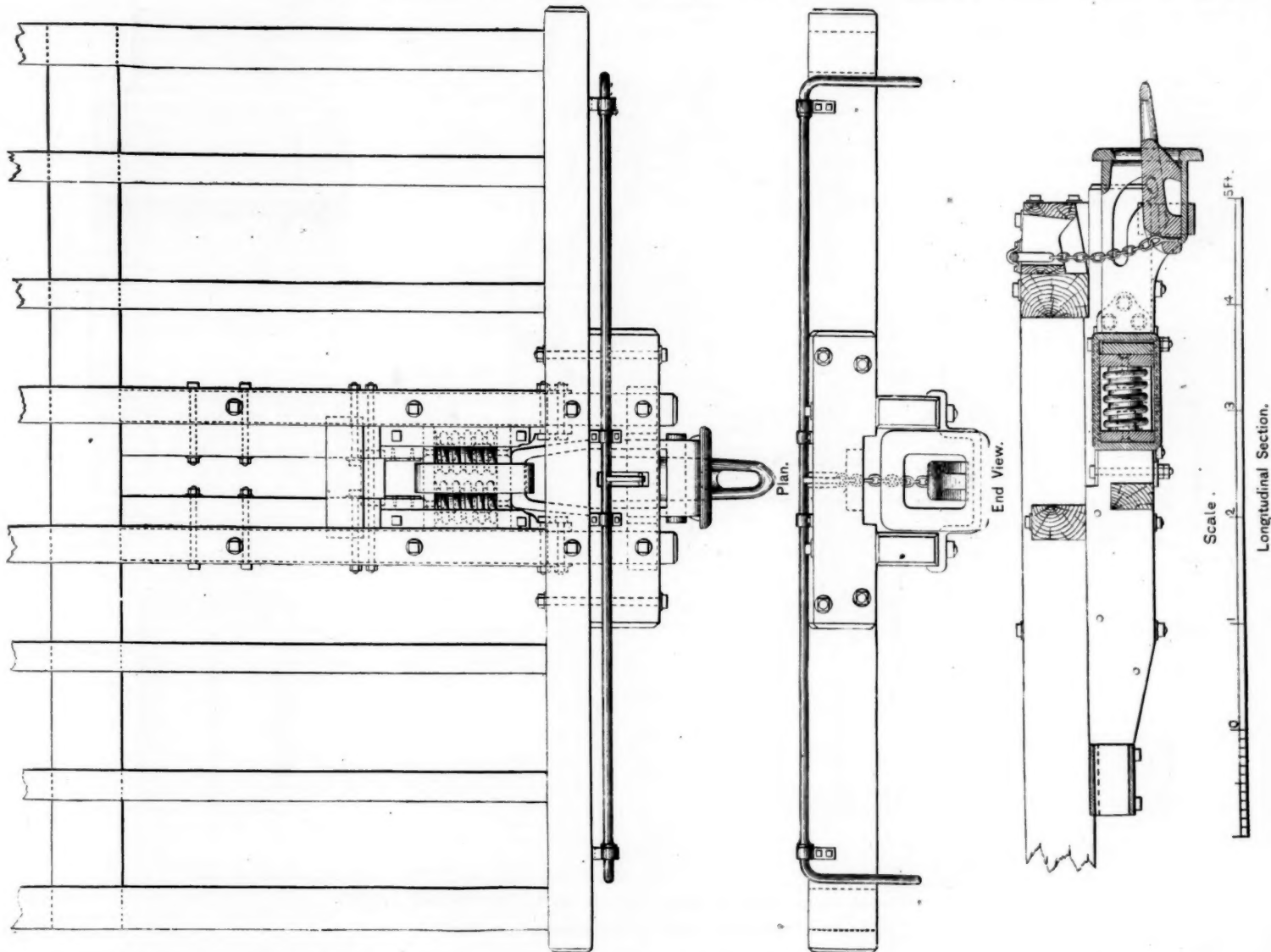
"5. That there is only one movable piece in each draw-head to perform the whole range of work."

The inventor and patentee is Mr. G. H. Ames, whose address is Adrian, Mich.

Contributions.**English Locomotives.**

TO THE EDITOR OF THE RAILROAD GAZETTE:

From time to time there arise controversies upon the comparative merits of American and English locomotives, caused by one thing or another, first by the failure of English loco



THE AMES AUTOMATIC CAR-COUPLER.

a drawing of the Ames self-coupling draw-bar, for freight cars. This coupler is designed to dispense with the ordinary link and pin.

"We have been experimenting with it for some years, and have between one and two hundred in use at the present time, and while disclaiming any intention to favor any particular patent, this one seems possessed of some merit, and has so much of novelty about it that we have thought you would like to have a cut made of it and published in the *Gazette*.

"A self coupling draw-bar is no new thing, as every railway official well knows, and can bear testimony to time wasted in examining worthless contrivances of every sort. So ludicrous are some of the patented inventions, that I confess I have been somewhat slow to discover merit in any of them, but this one combines some of the features all must admit as sought for, in that it dispenses with both the ordinary transient link and pin, and couples readily with its own fixed link into the old style of draw-back.

"It will further be observed that by the hook on the underside of the tongue, the difficulty arising from the variation of height of draw-bars is well overcome; the tongues in each draw-bar being uniform, the draw-bar that is high engaging the top of the other, and *vice versa*. The uncoupling is conveniently done from the corner of the car, obviating any necessity for stepping inside of the rails.

"The cut also shows two springs abreast, back of the draw-

bar that already two or three modifications of the continuous draw-bar have appeared, I conclude that others share my views in this respect. It is proper to state that the modifications alluded to present two springs to draw by, instead of a rigid bar.

"Some months since a conference of several railroad officers was held in Buffalo, to consider the subject of strengthening the present link and pin connections between freight cars—a subject the writer believes of much importance.

"We have just passed through an unusually severe winter, during which most of our railroads have had a larger volume of business than ever before. Now seems a favorable time to review the past, and in the coming summer so strengthen the weak parts of freight cars that they may be in better condition for the traffic of another winter. While some parts of freight cars have been made stronger for the safe carrying of much heavier loads than formerly, the drawing and buffing attachments do not seem to have been correspondingly improved. I believe suggestions to this end will be welcome and appreciated."

The inventor of the coupler illustrated sends us the following memorandum of what he calls extra advantages of his invention:

"1. That the face-plate of the drawheads have a bearing clear around them, which makes them a good, strong buffer. The size of the face-plates will prevent their shutting by

motives in Canada and then by the exportation of a few American engines to New Zealand or Australia. The latest discussion of the matter has been caused by the recent tendency toward higher speed in this country, and the inability of existing locomotives to meet the demand.

It is well known that the railway speeds of Great Britain are higher than those of this country, and it may be profitable to inquire into the circumstances which permit this. There are many differences between the railroad practices of Great Britain and America, but this article will deal mainly with the motive power. That there is but little known in the United States about English locomotives must be evident to anybody who will take the trouble to read communications which occasionally appear in our technical papers or inquire among persons who are connected with the working of our railroads. An article which appeared in *Harper's Monthly Magazine* about two years ago, entitled "English and American Locomotives," was so far from the mark that it must have done much to spread an erroneous popular opinion, and a recent correspondent of a contemporary makes such statements as to lead to the belief that persons upon the higher professional planes are not well informed upon the subject.

The English locomotive has and probably always will have, two circumstances in its favor for the accomplishment of high speed, viz.: lighter loads and straighter tracks than those in the United States. The English form of railway

carriage, as everybody knows, is that which grew out of the old stage coach, and although not conducive to comfort on long journeys, is that form which allows but little dead load per passenger carried, and we cannot expect a change from this economical system. Our own cars, on the other hand have a great deal of dead load, with a tendency to still more, and this is a serious obstacle in the way of the development of high speed in this country. While the improvement of our locomotives in several respects is easy, attention should likewise be given to improvement in the construction of our passenger cars, in order to preserve their conveniences and comforts with less weight.

As before hinted, many erroneous notions in regard to English locomotives seem to grow up with American boys, and one is that English locomotives are small and incapable of drawing our trains as well as our own. This is not true if

Diameter of driving-wheels..... 6 ft. 9½ in.
Weight on 4 coupled wheels..... 58,744 lbs.

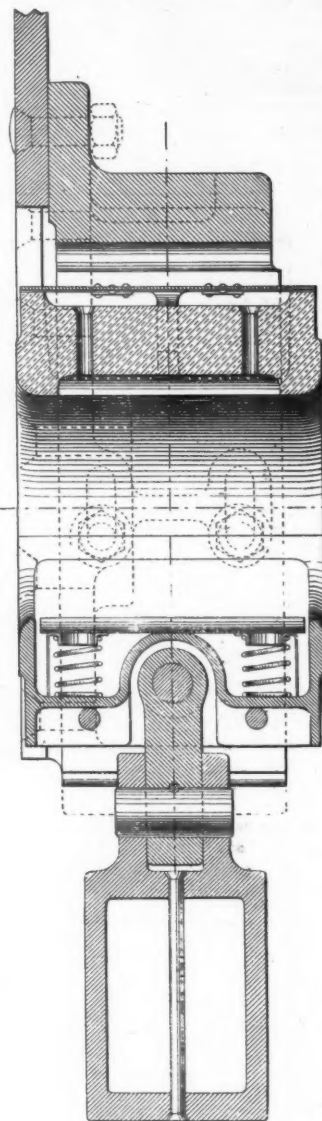
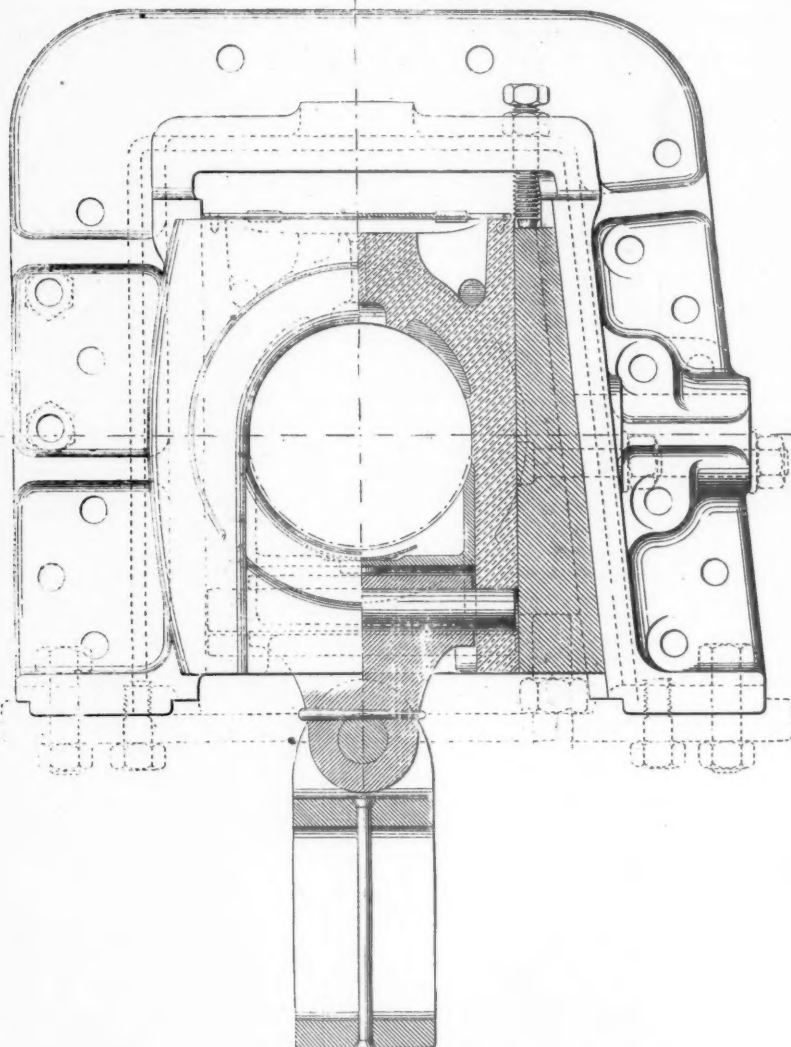
*These data refer to a locomotive built by Messrs. Sharp, Stewart & Co., of Manchester, and exhibited by them at the Paris Exhibition of 1878. It may be taken to represent London & Northwestern practice.

The Great Eastern Railway has a number of express engines with a single pair of driving-wheels 7 ft. 6 in., which were described and illustrated in the *Railroad Gazette* for Aug. 13, 1880, and succeeding numbers. It is probable that no finer locomotives have ever been constructed than these.

Other examples of large English locomotives might be selected from various lines; for example the Caledonian,* North British, Northeastern, Lancashire & Yorkshire, London, Chatham & Dover, London, Brighton & South Coast, etc., etc., but the above are sufficient to establish the fact that we have no bituminous coal-burning passenger

side cylinders and equalizing levers. The same remark will apply with nearly equal force to all of the great English lines except the London & Northwestern, the Northeastern, and the Great Western, although locomotives with radial axle boxes are used on the first, and bogie tank locomotives on the second. It is no exaggeration to say that the Wm. Adams bogie (see *Railroad Gazette*, Aug. 20, 1880), which is so extensively used in England is superior to any which is used in this country, for it performs all the desirable functions of a bogie in a perfectly direct and straightforward manner without complication.

As for equalizing levers, it is very questionable whether they are necessary on a first-class road. They fix the weight on the wheels, while, if they were not used, it could be varied, if it became desirable, by adjusting nuts for the purpose. On a good permanent way, long springs, say 4 ft.



HORN-BLOCK AND JOURNAL-BEARING WITH UNDERHUNG SPRING.

Used on the Great Eastern Railway of England.

tractive force, weight (and consequent adhesion), size of boiler, steam pressure, grate area and heating surface, have their usual significance; and to show the amounts of some of these elements, the principal particulars of the express passenger locomotives used on some of the great English main lines are here given:

*London & Northwestern Type.**

Diameter of boiler outside..... 50 in.
Number of tubes, 1½ in. in diameter outside... 219
Grate area..... 177 sq. ft.
Total heating surface..... 1,239 sq. ft.
Cylinders (inside)..... 18 in. by 25 in.
Diameter of driving-wheels..... 6 ft. 6 in.

Midland Bogie Type.

Grate area..... 17.5 sq. ft.
Total heating surface..... 1,313 sq. ft.
Cylinders (inside)..... 18 in. by 26 in.
Diameter of driving-wheels..... 7 ft.
Weight on 4 coupled wheels..... 62,521 lbs.

Great Northern Express (with a single pair of driving-wheels.)

Total heating surface..... 1,165 sq. ft.
Cylinders (outside)..... 18 in. by 26 in.
Diameter of driving-wheels..... 8 ft. 1 in.
Weight on driving-wheels..... 35,840 lbs.

[The Great Northern engine has a bogie with 4-ft. wheels in which the centre pin is nearer the rear than the forward axle, in order that the track may be brought to a bearing gradually for the driving-wheels. The pin is so placed that there is a weight of 15,680 lbs. on the forward and 17,920 lbs. on the rear axle.]

Glasgow & Southwestern.

Diameter of boiler outside..... 50 in.
Number of tubes, 1½ in. in diameter outside... 240
Grate area..... 16 sq. ft.
Total heating surface..... 1,206 sq. ft.
Cylinders (inside)..... 18 in. by 26 in.

locomotives which can compare with the English in most of the respects named.

The correspondent of a contemporary, above referred to, has given it as his opinion that it would be a step backward to adopt English designs. The writer, however, thinks differently, and proposes to consider certain features of English practice, which, in his opinion, easily make the English locomotive the finest in the world. This judgment has probably never been publicly expressed before in America, except by Mr. Barnet le Van, of Philadelphia.

Before, however, considering the points just referred to, it is desirable to dispel certain ideas which seem to be prevalent in the United States, namely, that all, or nearly all, locomotives in Great Britain have a single pair of driving-wheels, a rigid wheel-base, inside cylinders, and no equalizing levers. There are, comparatively speaking, very few engines with a single pair of driving-wheels in England: bogies (or two-wheeled trucks with radial axle boxes) are very numerous, and equalizing levers and outside cylinders are well known.

An observant traveler between Liverpool and Glasgow must be struck with the fact that on the Caledonian Railway there are scarcely any locomotives without bogies, out-

or 4 ft. 6 in. in length, with no equalizing levers, would probably work well.

There are several reasons why English locomotives should be superior to ours. Each line of any importance in England employs an accomplished and educated mechanical engineer known as the Locomotive Superintendent, who corresponds as nearly as possible to the American Master Mechanic. These men are appointed on account of their great experience and special ability, and are generally men of high scientific attainments. They have under them a corps of draughtsmen, who, with the Superintendent himself, are making a constant study of the improvement of the locomotive and rolling stock generally. All of their locomotives are designed in the company's office for their special traffic, and the bids are received for their manufacture according to very rigid specifications. They are sometimes built under the inspection of one of the company's officers. In England there is a greater variety in kind of locomotive than here, and this fact itself indicates greater progress. The American passenger locomotive presents the unique spectacle of being almost identically the same all over the country (as if exactly the proper design had been found), whereas in all other machinery there is endless variety. The above account shows that locomotive engineering in England has been, and is likely to be for some time to come, in advance of ours.

Probably the reason why there is so much prejudice in the United States against English locomotives is because of their failure in Canada, and of some trouble in other British pos-

*We give with this number of the *Gazette* a full page engraving of one of a number of passenger engines, with outside cylinders, bogie and equalizing levers, now in use on the Caledonian Railway, the photograph of which was furnished by our correspondent. This, he states, is a fair example of present English locomotive practice.—EDITOR RAILROAD GAZETTE.

sessions; but the English engine of to-day is a very different machine from those sent to Canada. We should not retain the idea that the English do not know how to build locomotives on the American system, for in 1878 Messrs. Dübs & Co., of Glasgow, built engines for the Intercolonial Railway of Canada which were American even to the smallest details, except that the driving-wheels were of wrought iron.

Having thus far spoken chiefly in general language, it is now important to consider specific parts of English locomotives. The boiler is undoubtedly superior to the American, for, in the first place, it is made of thicker plates, is often butt-jointed with double welts, double-riveted, and is frequently drilled. If the boiler is to be punched the holes are usually specified to be reamed out until the injured metal is removed. It is important that boilers should have longitudinal butt joints, for they are then perfectly cylindrical, and for this reason they keep their shape when under pressure. It is probable that grooving is often caused or accelerated by the strains inherent in boilers with longitudinal lap joints. If the joint is a double riveted double-welt butt joint its strength is sometimes estimated as high as 80 per cent. of the solid plate, while a double-riveted lap joint is considered to give about 72 per cent. In regard to drilling rivet holes, this is always done by Messrs. Dübs & Co., of Glasgow, whether so specified or not. In order to emphasize a little more what has been said, the following quotation from a representative English specification is given:

"* * * * *: the holes in the plate to be slightly counter sunk under the rivet heads, and so punched that when the plates are in the proper position for riveting the smaller diameters of the holes shall be together at the centre of the joint. All holes in the various plates and angle irons must be perfectly fair with one another and must not be drifted in any case; should any of the holes not be perfectly fair, they must be rimmed out until they become so, and every hole must be completely filled by the rivet. The holes in the angle irons must be marked from the plate and drilled (not punched), the pitch of rivets and lap of joints to be in all cases as shown on the detail drawing. Great care must be taken that the plates are brought well together before any rivets are put in. The edges of all the plates to be planed before being put together. Any caulking which may be required must be done with a broad-faced tool, care being taken that the plates are not injured by so doing. The boiler to receive a coat of thick boiled oil whilst warm; and another of red lead before being lagged."

The following is from the specification of another company:

"Before being lagged the boiler is to be tested by the contractor in the presence of the company's engineer or his agent, to a pressure of 200 lbs. per square inch with water, and afterward to 150 lbs. with steam, and it must be perfectly tight under these conditions."

An English boiler plate is seldom less than half an inch thick, and on account of the weakening effect of the joints, and the peculiar strains due to expansion and contraction to which a boiler is subjected, to say nothing of grooving and pitting, it would seem that no locomotive boiler of ordinary size should have thinner plates. At best the factor of safety is sufficiently small.

Fire-boxes in England are invariably of copper, and the crowns are now-a-days often stayed to the outer shell. The tubes are generally of brass, and vary from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. in external diameter. They are thinner at the smoke-box end than at the other, and are seldom set level, but have the forward end the higher.

The water spaces about the fire-box are wider at the top than at the bottom. This is a good feature and should always be adopted, as the flame impinges more directly upon the metal and thus the evaporation is increased. Not only this but the steam can more readily escape, and the general circulation is improved. The widening of the spaces should always be done by inclining the inner sheets inward, and not by inclining the outer ones outward, as is sometimes done at the front of the fire-box. Of course the latter method is better than nothing, but the former is more efficient. The water spaces are as much as 6 in. wide at the top. When the sides are inclined, the usual number of tubes can be put in by flanging out the forward part of the plate. This method is in regular use on the London, Brighton & South Coast and the North British Railway.

It has long been considered settled in England that the brick arch and deflector are very conducive to economy and to smoke prevention, and very few, if any, locomotives are without them. The writer knows from personal experience that the engines make practically no smoke. It is well known that perfect combustion can be brought about only by a perfect combination of the air with the gases from the fuel, and the arch and deflector are simple means to this end.

If there is anything which places the English locomotive in strong constructive contrast with the American, it is the plate frame. The bar frame has long been obsolete in England, and Englishmen regard the plate frame as one of the most important improvements belonging to the modern locomotive. This frame is either 1 in. or $1\frac{1}{2}$ in. thick, and unquestionably has great advantages over the bar frame, as will presently appear. In the first place it permits the fire-box to be about 6 in. wider than the usual American box, which is an important matter when a large grate area is sought. It also permits the outer sheet of a 49-in. boiler to be brought down perfectly straight on the sides, and it is evident that the largest practicable boiler which can be used with a driving-wheel much over 6 ft. in diameter, viz., 51 in., will be curved but very little to go between the frames, thus reducing the labor of plate bending to a minimum. Now, since it is advisable, as before explained, to incline the inner sheets of the fire-box inward, it is evident that, on account of this extra 6 in. in width due to the plate frame, the top of the fire-box will not be unduly contracted in width, and that there will be plenty of space for

the gases to mix. The next important advantage of the plate frame is that it can be treated as a structure in itself. On account of its great vertical stiffness it needs no support from the boiler, and in English locomotives it receives none. It is connected rigidly to the boiler only at the smoke-box, and at the fire-box it receives the weight of the boiler by means of the usual angle irons. Thus it appears that the boiler is carried simply for the purpose of generating steam and giving weight. This is of great importance, as the boiler is subjected to no extraneous strains whatever, and many leaks and perhaps other troubles are prevented. The custom of bracing the back ends of boilers to the frames, which is still practiced by some builders in this country, is most pernicious, and is never seen in England. The simplicity of the English arrangement is obvious, to say nothing of other advantages, and so far is the matter of simplicity carried that, as I am informed, in the Mogul engines recently placed upon the Great Eastern Railway the boiler is, with the exception of a few small bolts, wholly disconnected at the front end from the rest of the machine by the removal of six one-inch bolts. Another advantage of the plate frame which will become very important with the development of high speeds in this country is the facility with which large truck wheels can be used, for the frame can be cut out sufficiently to allow the truck wheel to swing under it. Last and not least, the stiffness of the frame at the front end makes the braces from the smoke-box to the frame unnecessary.

Such then are the advantages of the plate frame. The compromise which has sometimes been practiced of flattening the bar frame side of the fire-box has only one of the advantages mentioned.

In England the frames are generally punched out of a single plate, but they are sometimes welded.

In regard to the comparative costs of plate and bar frames, the writer is unable to make a statement, but with the proper plant, the plate frame would probably be the cheaper.

The guides for the axle boxes, called "horn-blocks," are either cast iron or cast steel, and are bolted to the frame by means of countersunk 1 in. bolts, though formerly they were often riveted.

Incidental to the use of the plate frame, but immediately arising from the manner of attaching the horn-blocks, axle bearings as long as desirable can be used, for the horn-blocks can be made of any length. It is therefore unnecessary to dish the wheel. The bearings of the Mogul engines are 11 in. in length, and the wheels have no dish.

Of course, when a plate frame is used, the springs near the fire-box must be placed below the axle,* which leads to slightly more complication and the use of more trustworthy materials than is customary in American locomotives; but there is an advantage in this position of the spring because it can be made of any width. A common width in England is 5 in. Other things being equal, a broad spring must work more satisfactorily than a narrow one, and with the increase of weight of locomotives the width of springs must increase, and we find the plate frame forcing us to the proper position for such springs.

Gun metal seems to be the favorite material for axle-boxes in England, although cast steel is used to some extent.

Steel axles are used as here, but they have larger bearings than ours, have forged collars, and are always enlarged where they enter the hub of the wheel. The last feature is important, as axles are most likely to fail at this point. Forged collars are evidently more trustworthy than separate cast-iron ones secured by set screws.

The wrought-iron wheels which are always used (with the exception of those on a few freight engines) need no comment. Nothing but their cost prevents their use here.

In England tires are generally secured in a manner unknown in this country. They frequently have an inner flange on the side of the tire toward the engine, and this flange has a lip which fits into a corresponding groove in the wheel, so that if the tire breaks this lip and certain bolts prevent it from leaving the wheel. This is of course an important means toward safety, especially when traveling at a high speed. Several other methods of attaching tires are also used.

Coupling rods, besides having bushed solid ends, are generally swelled in the middle, as they should be theoretically. The writer has not heard of their causing trouble by breaking. Connecting rods are also occasionally swelled.

Piston-rods are larger as a rule than those used in this country, and with a few exceptions they are enlarged where they enter the cross-head, and also where they enter the piston. This is really better construction than the method of reducing them at those points, but it is inconvenient, as the piston must be taken off the rod, in order to remove the rod or gland. To overcome this in part the gland is sometimes made in halves.

Pistons are, it is safe to say, always solid in English locomotives, with cast-iron or steel rings sprung over the piston into grooves. This is known as the Ramsbottom piston packing, and its universal adoption in England seems to be sufficient evidence of its success. Its simplicity certainly commends it. The solid piston permits the back (or front) cylinder-head to be cast hollow without unduly protruding. This kind of head is sometimes used, and when finished (or not) the back lagging can be dispensed with, thus removing one more part. It is well known that stagnant air within the head is an excellent non-conductor of heat.

* As American locomotive builders and superintendents are generally not familiar with the method of constructing those parts employed in England where plate frames are used and the springs are suspended below the journal-boxes, we give herewith an engraving of the "horn-blocks" and journal-boxes used on the Great Eastern Railway, showing also the method of suspending the springs from the boxes.—EDITOR RAILROAD GAZETTE.

When outside cylinders are used in England they are connected by means of one or more cross girders to which the boiler is attached by about six 1-inch bolts passing through the lower part of the tube plate. (The tube plate in all English locomotives goes right across the front end of the boiler, to which it is connected by means of angle iron). These six bolts can be removed without any inconvenience, and the whole boiler detached in a short time.

The American system of casting each cylinder with half the saddle is much simpler than the English, but it may give more weight; this is, however, doubtful.

The method of connecting the tube plate of the shell, just referred to, makes a first-rate job, but its costliness will probably prevent its use here.

The valve motion of English locomotives is generally of the Stephenson type, but the Allan link is often seen. The link is frequently suspended from the bottom or top; in the latter case the reversing shaft is below the link. The link is suspended by two hangers, which prevents any side wear. The rocker is scarcely ever used, and, in fact, the writer knows of no line on which it can be seen except the Great Eastern Railway. Even with outside cylinders the valves are placed between the cylinders for the sake of being worked direct from the link. The valves are generally made of brass, phosphor-bronze, or gun metal, although cast iron has been tried with good results. The travel of valves is seldom more than 4 in., and the lead is generally greater than the amount thought sufficient in the United States.

The matter of simplicity has once or twice been touched upon, and this naturally suggests the appearance of English locomotives. To an American eye, seeing English locomotives for the first time, they are indeed strange-looking, but they improve upon acquaintance. One soon finds himself admiring them, for they are noble-looking, with their large wheels and boilers. He is not slow to perceive that they possess all of those qualities which should characterize high-class machinery, namely, simplicity, directness and smoothness, or freedom from unnecessary moldings, perforations, etc. What can be more proper than a perfectly smooth dome cover (if domes must be used) with a hemispherical top? And in what striking contrast they are with fluted dome tops and sand-box covers, which are occasionally seen in this country. The sand-box is never placed upon the boiler, except in rare instances, but instead of that one is placed in front of each driving-wheel, often low enough to be filled by a person standing on the ground. If sand is spilled upon the top of the boiler, it usually falls upon the wearing parts, but with the English arrangement this is less likely to happen. The Ramsbottom duplex safety valve contributes its part toward the peculiar appearance of these locomotives, for there is hardly a line which has not adopted this excellent device. The features of it are that it is simple, durable, either valve can be tried by the engineer, and yet he cannot prevent it from blowing off. The solid end coupling-rods are seen everywhere, and our master mechanics would do well to adopt them, for they are strong, cheap, neat, and the bushings will run about two years without renewal. The connecting rods of outside cylinder engines are often solid, with a key held by two set screws. They are sometimes forked, the back end being closed with a block through which end the prongs of the fork passes a bolt. This is a good arrangement, and has, as well as bushed solid coupling-rod ends, been adopted by the Pennsylvania Railroad on their most recent express locomotive. Straps are never seen in England.

In the preceding description the main points in which English and American practice differ have been dwelt upon, and it cannot fail to be apparent that the English locomotive is a more perfect piece of machinery than the American, both in design and workmanship; and there are hundreds of locomotives in Great Britain which could run with perfect safety on American railroads. The superior economy of the English locomotive is generally acknowledged, but this is partly due to the use of inside cylinders, which are so well protected from the cold. To copper fire-boxes, small brass tubes, fire grates, good coal, brick arches, deflectors, and gradually widening water spaces, we must look as other reasons.

The advocates of high speed in this country will readily see that they can learn a great deal from this practice, and it would be well to turn attention to the improvement of what has already been done in England. If the plate frame does not give a sufficient grate area, the Belpaire fire-box (see *Railroad Gazette*, July 9, 1880), so much used in Belgium and France, still remains at our service. This is undoubtedly the best form of fire-box known, both for large grate area and for efficient direct staying, the advantages of which are generally acknowledged.

F. W. DEAN.

Notes by the Way.

SPRINGFIELD, Ill., 1881.

TO THE EDITOR OF THE RAILROAD GAZETTE:

So much, in this day of light and knowledge, is one shop and practice like another, so little is there of what will be news to the well informed reader, a mere traveler's pickings seem hardly worthy of record. If a man has no professional interest in his business, if it is a mere cast-iron affair without anything but new forms of cast-iron to be gotten out of it, if there is nothing of intellectual interest in these iron forms, no progress, no problems, no ideals, nothing to be solved or attained—to such a man railway business must be a vast monotony, and as such, it is not strange that men become heartily sick of it.

Such a man, as your readers have had abundant proof, the Master Mechanic of the Wabash, stationed here, is not. No young aspirant has a more active, wideawake, and truly professional feeling for his business, and life is full of cheer

and sap for him in consequence. Nowhere about his shops or round-houses is there that tired, listless monotony of brain which is almost characteristic of some railroad centres. There is no way of putting life into subordinates except by the agency of a live man.

The problem of boiler incrustation is one demanding constant attention in the West. The *Gazette* has already described Master Mechanic Johann's washing-out apparatus, and his straight boiler, stayed with long crown-bars. He will contribute a short paper at the approaching convention of the Master Mechanics' Association, giving the very favorable experience with two of these boilers—so favorable, that he intends to use the same form in other locomotives soon to be built. Nothing, however, prevents incrustation, although, undoubtedly, by slanting the crown-sheet, it is possible to prevent, in some measure, the settlement of sediment on it. The wiser method is also to give attention to the water used. Master Mechanic Wilson, of the Chicago & Alton Railroad, at Bloomington, has had the water of several station wells analyzed. The water of the company's well at Dwight, yielded 81.55 grains to the gallon (of 231 cubic inches), as follows:

Silica.....	1.16
Peroxide of iron.....	1.10
Carbonate of lime.....	9.26
Carbonate of magnesia.....	7.51
Carbonate of soda.....	17.17
Sulphate of soda.....	39.77
Chloride of sodium.....	4.02
Organic matter, etc.....	1.01

81.55 grains to gallon.

To this analysis the chemist adds: "Therefore, the amount of incrustation material in this water equals 18.98 grains; but the injurious action would be counteracted either wholly or in part by the 17.78 grains of carbonate of soda."

The fact is, however, that the incrustation from this water is very troublesome—more troublesome than from the water at Bloomington, which contains a little more lime and magnesia and considerably less carbonate (only 6.80 grains) and sulphate (21.70 grains) of soda, but also less iron. No analysis has been made of the scale itself, but its method of deposit and its character would appear to indicate sulphate of lime, which, by some reaction under the heat of the boiler, is formed from the carbonate of lime and the sulphate of soda. This, however, is not the supposed order of affinity between those substances, nor do 9.21 grains of lime and 7.51 grains of magnesia afford any large ratio of incrusting material to the gallon, although the incrusting properties of the water are said to be of very bad character. The Chicago & Alton propose to dig ponds of some size and use them as sources of supply. The mud and sediment from pond water is easily washed from the boiler, and the organic and other acids in this water are said to be an excellent solvent for the incrusting lime. Certainly the use of rain water, if it could be obtained in proper quantity, would be the simplest solution of this perplexing difficulty, which causes an item of considerable amount in locomotive expenditure on Western roads.

Master Mechanic Wilson will soon build two engines fitted with his double exhaust valve. Now that the Allen slide valve is being brought into use, although I have not met with any Western road which is adopting the Allen, it is possible that the Wilson valve may get more attention.

I am glad to say that whatever rivalry may exist between the Chicago & Alton and the Wabash, there are the most cordial relations between the departments of machinery of the two roads. The large and fine buildings of Joliet limestone at Bloomington are quite in contrast with the very humble shops, offices and round-houses here. This is one of three shops. At Bloomington, the work of a railroad centres around one Master Mechanic's office.

Among the complete suite of buildings at Bloomington are two round-houses, erecting shop, blacksmith shop, planing mill, car shop, paint shop, store house and even model house—the latter filled with forms which, no doubt, illustrate the diverse and fertile operations of the human mind on the railway problems of even one Master Mechanic's office.

I was particularly interested in the car shops; nearly every kind and part of car-work is there done. Six "chair cars," three day coaches, and one thousand freight cars were built last year. I noticed a baggage car 53 ft. long, with special apparatus for carrying fish inland from Chicago.

But among this group of fine buildings, none interested me more than the really beautiful little reading room and library. It is a frame building 28 ft. x 28 ft., finished in Norway pine and walnut, and with its two large doors thrown open and disclosing its cool, quiet, cosy interior, was a constant invitation to come in and rest. The attendance averages about thirty per day, and there are about two hundred subscribers to its library. The building belongs to these subscribers, and was built by private contributions entirely, although the directors of the Chicago & Alton, as private citizens, have recently added about \$1,000 to its funds. There is a librarian constantly in attendance.

I should add that, as with so large a part of what is good in the world, the movement for the library began and was organized by ladies. X. Y. Z.

An Interview with Jay Gould.

The Chicago *Tribune* publishes a report of an interview with Mr. Jay Gould in Chicago, June 1, from which we take the following, which seem unusually free expressions of opinion for Mr. Gould to make:

The reports regarding his connection with the New York, St. Louis & Chicago, which is being built from Buffalo to Chicago, were entirely unfounded, and he had nothing whatever to do with that enterprise. That road would be a competitor against the Lake Shore and the Fort Wayne, and he

had no desire to incur the enmity of Mr. Vanderbilt or the Pennsylvania people, being on the best of terms with both parties. He was not at present engaged in enlarging his Eastern facilities, but was principally engaged in developing his Southwestern and Mexican enterprises. The future of these roads, he said, was bright and flattering, and they would prove far more valuable and remunerative than any roads in the West or East. Texas was a far better country for development and productiveness than New Mexico and Arizona, and would become one of the best cotton-raising states in the country. But, besides this, the cattle business from Texas would always be of great importance. Aside from this, his Southwestern roads would get much business from Mexico. They were being rapidly pushed forward to that country, and he had no doubt that the business with the neighboring Republic would assume in time immense proportions. He had lately received letters from Gen. Grant speaking in glowing terms of the resources of that country, which, with proper railroad facilities, would be greatly enhanced and become of still greater importance. The railroads already in operation there were well patronized, and the people seemed to delight in railroad traveling, especially as conveyances were rather scarce. Mexico, unlike our western territories, was already settled with a large population—about 9,000,000 people—who, according to Gen. Grant, were as thrifty and enterprising as any in the world. He did not think that the Atchison, Topeka & Santa Fe or the Denver & Rio Grande Railroad would ever be able to compete with his Southwestern combination for the Mexican business, nor would the former ever amount to much as a through route to the Pacific coast. The Union Pacific would always remain the principal and most direct route to the Pacific coast and the Southern Pacific would find a far more available outlet over the Texas Pacific than by way of the Atchison, Topeka & Santa Fe.

He had no interest whatever in the Denver & Rio Grande road. This road, he said, was a good line for the local business in the mountains, but as a through line it would never amount to much. He thought that road was being pushed too far, and its managers were going it rather wild.

He had not given up his interest in the Union Pacific, and continued to take as lively an interest in the affairs of that route as ever. With the Northern Pacific combinations he had nothing to do, and it was rather against the interests of the Union Pacific than otherwise. Before that combination was effected the relations between the Union Pacific and the Oregon Railway & Navigation Company were of a most friendly nature. It was the intention of the Union Pacific to run its new extension northwest from Ogden as far as Baker City, and there connect with the Oregon Railway & Navigation Company's line, but, since the formation of the Northern Pacific combination, the Union Pacific changed its programme, and its Oregon Branch will be pushed right ahead to Portland. This will make the Union Pacific a far better, shorter, and more available route to Oregon than the Northern Pacific in connection with the Oregon Railway & Navigation Company's lines.

As proof of his assertion that he did not care to increase his railroad interests in the East, Mr. Gould cited the fact that he had established the Mississippi barge lines, which were directing a good deal of business down the Mississippi to New Orleans that heretofore went East by the railroads. He had no idea he said, of hurting Chicago when he established the Mississippi barge lines, and he does not think that Chicago suffers from them. The Mississippi River line was simply a winter route providing the same cheap outlet by water during the winter as the lakes afford during the summer. The lake routes were much more available during the summer than the barge lines, and would continue to get the bulk of the Western business. His principal object in establishing the barge lines was to stop the clamor of the Grangers for more competition, and thereby prevent onerous and disastrous railroad legislation.

As regards the complications that have recently arisen between Vanderbilt and the Wabash, he said he did not think that there would be much of a fight. He could not see why Vanderbilt should feel hurt because the Wabash finds an independent outlet via the Butler road and the Great Western. When Vanderbilt secures an independent outlet to the Southwest via the Lake Erie & Western and the Chicago & Alton, the Wabash has certainly no advantage by having an independent outlet East via the Great Western.

The reports that he was unfriendly to the Southwestern Railway Association were entirely unfounded. Nothing could be gained by breaking the pool; on the contrary, all the Missouri River roads, including the roads in which he was himself interested, were the better for it. He could not afford to injure his own interests, nor did he desire to injure the interests of others. Of course, the pool would have to be reorganized on a new basis, and new interests that had been organized since the organization was formed would have to be recognized. It would also be desirable, he said, that the Iowa pool lines would come into the Southwestern Association. He could see no reason why an amicable arrangement should not be effected at to-day's meeting.

The Georgia Lease.

A Savannah correspondent writes to the Louisville *Courier-Journal* as follows:

The railroads of Georgia have of late reached great prosperity and power. The state is wonderfully rich, and it has been fortunate in its citizens, who have gradually worked out great conceptions in spite of numerous obstacles. The principal railroads in the state are the Georgia and the Central, of Georgia. Of the first, Gen. E. P. Alexander was President until he was induced to go to Louisville, and Col. Phinizy succeeded him. Of the Central, William M. Wadley has long been absolute dictator, and has succeeded in creating a very powerful organization. It seemed for a long time uncertain whether the Louisville & Nashville and the Georgia roads were to be antagonists or allies. When Wadley went down to Montgomery, one fine morning, and purchased the Montgomery & Eufaula, it seemed that there was to be a contest, and that Louisville was to be excluded from Georgia, and Louisville merchants looked upon Mr. Wadley as a very dangerous man. But wiser counsels prevailed, and after Dr. Standford and Mr. Newcomb secured possession of the Nashville & Chattanooga, it was plainly to the interest of each to reach a better understanding of their mutual relations. Mr. Newcomb came very quietly into Atlanta, held a short conference with Mr. Wadley, unfolded his plans to him, said he was of the opinion that mutual interests demanded co-operation instead of antagonism, and left him to choose. Mr. Wadley was too far-sighted and too wise to reject an alliance of that kind, and a thoroughly good understanding has existed between the companies ever since. About the same time, Gen. E. P. Alexander, who had brought the Georgia road out of all its difficulties to a high state of prosperity, was made Vice-President of the Louisville & Nashville, which strengthened, more than anything else could have done, the position of the Louisville & Nashville in Georgia.

Yet these arrangements, while satisfactory for the time, were not of a character to insure anything for the future. New roads were building and new combinations were formed,

and it has been considered essential for the Louisville & Nashville still further to strengthen itself in Georgia. It reaches Atlanta from Chattanooga via the Western & Atlantic, which is free to all, but beyond Atlanta it was dependent upon the good will of its allies, which might or might not be perpetual. The interests at stake were great and the Louisville & Nashville is not disposed to take any risks or to trust to the future what should be provided for to-day.

The key to the situation is the Georgia road. The main line of this road extends from Atlanta to Augusta; thence to Port Royal is a line in which it has a large interest. From its main line it also has a branch to Macon. It owns a controlling interest in the stock of the West Point road, which runs from Atlanta to West Point, from which place the Western Alabama, in which it has a half interest, extends its lines on to Montgomery, and from there to Selma.

The Central Georgia (Wadley's) road has also a large number of branches and connections. The main line runs from Savannah to Macon, thence to Atlanta. It has a branch running from Millen to Augusta, and Col. Wadley also controls the line from Albany to Eufaula and from there to Montgomery, which is the famous Montgomery & Eufaula road.

These two roads have a fine local as well as through business, are built in a level country, are capitalized on a very small basis, and are operated at a very light expense. Each constitutes a very valuable piece of property, and operated one against the other could do irreparable injury. Either in the hands of a rival to the Louisville & Nashville could be used most effectively against the upbuilding of its business in Georgia and deprive it of many advantages which it expected from a number of its other acquisitions, and consequently it was very desirable so to arrange matters as to make it impossible that either the Central or the Georgia should fall into the hands of rival corporations. This has been accomplished. The simple fact has been announced that the Louisville & Nashville was a joint lessee with Col. Wadley in his lease of the Georgia road, and this letter is written that your readers may understand the full significance of that lease. If it is clearly understood, it will be seen that no more important acquisition has been made by the Louisville & Nashville at any time than when it secured a half interest in this lease. It makes any organization of hostile interests in Georgia impossible, and secures an open pathway for all time from the Ohio to the coast. The lines of the Georgia are also so situated as to have a strong influence all over the state, and especially does it strengthen the Louisville & Nashville in Atlanta. It certainly does not exclude all rivals, giving a monopoly; this, even if the road be desired, is not possible. At Atlanta the Louisville & Nashville is met by the Richmond & Danville combination, while Col. Cole says his line will soon be completed, so that he will have an unbroken connection from Chattanooga, via Rome, Atlanta and Macon, to Brunswick, which place has a good harbor, but is a port of little importance.

To-day the details concerning the future of the leased lines are being arranged by Gen. Alexander, of the Louisville & Nashville, and President Wadley, of the Central. Each road selects three directors, and they select the seventh member, who is to be manager. The new management will leave nothing undone to add to the value and productiveness of the property.

The Bear Swamp Accident.

In the case of the derailment of a train at Bear Swamp, N. J., on the Pennsylvania Railroad, by a misplaced switch, by which two passengers were killed, the coroner's jury has found the following verdict:

"We find that Augustus B. Ritter came to his death at Bear Swamp, in the township of Lawrence, County of Mercer, on the 30th day of May, 1881, by reason of injuries received in an accident to passenger train No. 25, west bound, upon the railroad of the Pennsylvania Railroad Company; that Lucetta Pennington died in the baggage-room of the Clinton street depot of the Pennsylvania Railroad, in the city of Trenton, on the 30th day of May, 1881, through injuries received in the same accident; that said accident resulted from the negligence of employés of the said railroad company, as follows: The negligence of John R. Sutphin, their telegraph operator and switchman at Bear Swamp Station, in failing to close the switch; the negligence of Edward Osmond, the engineer of said train, in omitting to observe and obey the distance switch signal connected with said switch, which at the time indicated the displacement thereof. And we further censure the Pennsylvania Railroad Company for not employing a sufficient and competent force to operate the switches and signals of said station."

The above was signed by nine of the jurors.

A minority verdict was also presented as follows, by three jurors:

"The following-named jurors are of the opinion that the censure of the Pennsylvania Railroad Company in the foregoing verdict is not warranted by the evidence before them and cannot concur therein. We assent to that portion of said verdict which precedes such censure."

ANNUAL REPORTS.

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Boston, Concord & Montreal.

This company owns a line from Concord, N. H., north by west to Woodville (Wells River) and thence northeast to Groveton Junction on the Grand Trunk, 145 miles, with a branch from Wing Road to Fabyan and Mt. Washington, 22 miles, making 167 miles in all. The thirty-fifth annual report is for the year ending March 31, 1881.

The equipment consists of 31 engines; 23 passenger, 2 observation, 2 drawing-room and 17 mail and baggage cars; 680 freight cars. One engine, 1 baggage car and 38 freight cars were added during the year.

The general balance is as follows:

Stock, preferred.....	\$800,000.00
" new.....	540,400.00
" old, dividends, etc.....	459,600.00
Total stock (\$10.778 per mile).....	\$1,800,000.00
Bonds (\$15.145 per mile).....	2,520,200.00
Unclaimed coupons and dividends.....	10,522.89
Profit and loss.....	591,756.33
Total.....	\$4,931,479.22
Road and extensions.....	\$4,347,000.00
Trustees of sinking fund.....	201,500.00
Pemigewasset House.....	16,000.00
Fuel and materials.....	662,801.89
General Manager's account.....	32,206.53
Cash for unpaid coupons, etc.....	10,522.89
Cash and bonds on hand.....	161,447.91
Total.....	4,931,479.22

The company holds 680 shares of its own stock. The company and the trustees hold \$422,000 bonds, leaving only \$2,107,200 outstanding.

The traffic for the year was as follows:

Train miles:	1880-81.	1879-80.	Inc. or Dec.	P. c.
Passenger.....	412,753	367,731	I.	45.022
Freight.....	516,576	411,049	I.	105.527
Other.....	22,884	10,569	I.	12.315
Total.....	952,213	789,349	I.	162.804
Passengers carried.....	288,473	247,313	I.	42.160
Passenger miles.....	9,286,820	8,364,791	I.	922.029
Tons freight carried.....	285,597	192,878	I.	92.719
Ton miles.....	17,135,830	11,572,661	I.	5,563,169
Av. train load:				
Passengers No.....	22.50	22.75	D.	0.25
Freight tons.....	33.17	28.15	I.	5.02

There were 110,595 $\frac{1}{2}$ passengers and 255,119 tons freight carried to or from other roads. The increase in business was very large, especially in freight.

The earnings for the year were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Passengers.....	\$310,796.07	\$260,921.42	I.	\$49,874.65
Freight.....	454,184.12	383,531.35	I.	70,652.77
Mails, etc.....	32,576.30	33,670.57	D.	1,094.27
Total.....	\$797,556.49	\$678,123.34	I.	\$119,433.15
Expenses.....	586,172.85	477,251.46	I.	108,921.39
Net earnings.....	\$211,383.64	\$200,871.88	I.	\$10,511.76
Gross earn. per mile.....	4,775.79	4,060.62	I.	715.17
Net earn. per mile.....	1,265.77	1,202.82	I.	62.95
Per cent. of exps.....	73.50	70.38	I.	3.12

The report says: "The amount of net earnings would have been materially increased had it not been for the extra expense incurred in carrying an increased freight traffic over a road-bed not thoroughly prepared for it, and also for extraordinary expenses amounting to over \$37,000, which we have made the past year and paid for out of our earnings for necessary permanent improvements."

The income account was as follows:

Bonds and cash on hand from last report.....	\$188,067.82
Net earnings.....	211,383.64
Interest received.....	9,080.46
Sale of bonds.....	30,500.00
Decrease in fuel and Gen. Manager's account.....	24,998.38
Total.....	\$464,030.30
Interest, etc.....	\$167,795.10
Dividends on preferred stock.....	51,933.00
Increase in supplies.....	15,231.40
Bonds taken up.....	57,100.00
Total.....	292,059.50

Bonds and cash on hand..... \$171,970.80
Of the bonds taken up \$25,500 were mortgage bonds, and \$31,600 convertible bonds.

During the year 195 tons new rails and 69,759 ties were used; 11,652 rails were repaired and relaid. A new issue of bonds has been made since the close of the year, with the proceeds of which extensive improvements are to be made.

The extension of the road up the Connecticut Valley to Colebrook and beyond will be located this season, but probably no further work will be done this year.

The Profile & Franconia Notch is to be extended to Bethlehem Street, making a better connection and providing better facilities for passenger business. The connection with the Whitefield & Jefferson road has been advantageous.

The company has been asked to aid in building the New Zealand and the Pemigewasset Valley roads but has taken no action.

Baltimore & Potomac.

This company owns a line from Baltimore to Washington, 43 miles, with a branch from Bowie, Md., to Pope's Creek, 49 miles, making 92 miles. The road is controlled by the Pennsylvania Railroad Company and its bonds are guaranteed jointly by that company and the Northern Central. The road has been a very expensive one to build, owing chiefly to the great cost of the tunnel and other works by which it enters Baltimore. The following figures for the year ending Dec. 31 are from the reports presented at the recent yearly meeting in Baltimore.

The earnings for the year were as follows:

	1880.	1879.	Inc. or Dec.	P. c.
Gross earnings.....	\$790,147.37	\$699,772.05	I.	\$90,375.32
Expenses.....	632,063.19	526,201.69	I.	105,861.50
Net earnings.....	\$157,484.18	\$173,570.36	D.	\$16,086.18
Gross earnings per mile.....	8,588.56	7,806.11	I.	982.45
Net earnings per mile.....	1,711.78	1,886.63	D.	174.85
Per cent. of exps.....	80.07	75.19	I.	4.88

Increase of expenses was due chiefly to large renewals and improvements of road, and to general increase of cost of labor and materials.

The earnings and expenses were divided as follows:

	Earnings.	Expenses.	Net or Deficit.	P. c. of
Main line.....	\$748,460.30	\$571,137.57	Net.	\$177,322.82
Pope's Creek line.....	41,686.08	61,525.62	Def.	19,838.64
Total.....	\$790,147.37	\$632,663.19	Net.	\$157,484.18

The earnings of the main line were \$17,406 per mile

gross, and \$4,124 per mile net. The gross earnings of the Pope's Creek line were only \$851 per mile gross; this line has never yet earned its running expenses.

The result of the year was as follows:

Net earnings.....	\$157,484.18
Interest on funded and other debts.....	272,342.33
Loss for the year.....	\$114,858.15

In 1879 the loss was \$98,746.97. The deficiency is met by the guarantor companies.

During the year 542 tons of steel rails were laid on the Washington line, and new iron bridges are being built over the Patapsco, Patuxent and other streams. All but eight-tenths of a mile of the track between Baltimore and Washington is now laid with steel rails. The report of the superintendent shows the excellent condition of the motive power, passenger and freight equipment, and what has been done in the maintenance of way and stations, including repairs of bridges and alterations of buildings. Work upon the double track has been continued at both ends of the line. Work will be continued until the entire road shall be double tracked.

Montpelier & Wells River.

This company owns a line from Wells River, Vt., to Montpelier, 38 miles. Its report is for the year ending Dec. 31.

The company has no bonded debt. There is a debt due for equipment which, on Jan. 1, 1880, amounted to \$66,369.54; of this there was paid during the year \$16,496.97, leaving \$49,872.57 due Jan. 1, 1881.

The equipment consists of 3 locomotives; 4 passenger, 1 combination and 3 mail and baggage cars; 20 box, 4 stock, 5 hay, 36 flat cars and 1 caboose; 1 derrick car and 1 snow-plow. There were 11 flat cars added during the year.

The earnings for the year were as follows:

	1880.	1879.	Inc. or Dec.	P. c.
Passengers.....	\$22,530.38	\$27,170.81	D.	\$4,640.43
Freight.....	51,468.46	50,244.51	I.	1,223.95
Mail, etc.....	12,480.98	7,004.81	I.	5,476.17
Total.....	\$86,479.82	\$84,520.13	I.	\$1,959.69
Expenses.....	65,849.94	61,062.06	I.	4,787.88
Net earnings.....	\$20,629.88	\$23,458.07	D.	\$2,828.19
Gross earn. per mile.....	2,275.78	2,224.21	I.	51.57
Net ".....	542.89	514.76	I.	28.13
Per cent. of exps.....	76.14	76.86	D.	0.72

The income account is as follows:

Balance from 1879.....	\$10,300.89
Net earnings for 1880.....	20,629.88
Total.....	\$31,030.77
Real estate.....	\$1,463.16
Interest on equipment debt.....	2,982.17
On principal of equipment debt.....	16,496.97
Balance, Jan. 1, 1881.....	\$9,094.47

The report says: "Necessary repairs have been made on engines, passenger, baggage and freight cars. The bodies of seven platform cars have been renewed and one new platform car built."

"The roadway has been greatly improved by additional ballasting, and the renewal of sleepers at various points."

"We have purchased and laid in main line 189 tons of steel rails; also purchased 10 steel rail frogs which have been laid in main line in place of cast iron frogs taken out and laid in side tracks."

"We have added eight new side tracks (amounting in all to nearly $\frac{1}{2}$ miles), the expense of which has been charged to repairs of earthworks."

"The trestle bridge at Plainfield has been completed, and ordinary repairs made on other bridges."

"The buildings and fences have been carefully looked after and kept in thorough repair."

"No serious accident has happened to any passenger or to property transported over the road during the year."

Atlanta & Charlotte Air Line.

This company owns a line from Charlotte, N. C., to Atlanta, Ga., 269 miles, whereof 42 miles are in North Carolina, 126 in South Carolina and 101 miles in Georgia. The report is for the year ending Dec. 31, 1880.

Since the report was made the road has been leased to the Richmond & Danville Company, and it is now worked by that company.

The equipment consists of 30 locomotives; 17 passenger, 5 combination, and 10 mail and baggage cars; 246 box, 15 Green Line box, 11 stock, 5 coal, 79 flat and 10 caboose cars; 1 officers', 1 derrick and 6 shanty cars. Additions in 1880 were 4 locomotives, 6 passenger and 4 mail and baggage cars, and 1 box car.

The general account was as follows:

Stock (\$6.320 per mile).....	\$1,700,000.00
Bonds (\$19.338 per mile).....	5,302,000.00
Net earnings, 1880.....	364,137.57
Due connecting lines.....	6,504.15
Balance of income, Jan. 1, 1880.....	111,764.73
Total.....	\$7,384,406.45
Road and equipment (\$24,688 per mile).....	\$6,640,965.48
Discount on income bonds.....	271,200.00
Interest and rents, 1880.....	337,700.00
Supplies.....	44,567.35
Accounts and balances receivable.....	58,199.53
With trustee for purchase of Elberton Air Line bonds.....	25,768.85
Cash.....	6,005.24
Total.....	7,384,406.45

During the year the cost of road and property was increased by the expenditure of \$107,719 for new shops, filling trestles, etc., and \$85,248.48 for new equipment.

The bonded debt consists of \$500,000 preferred 7 per cent. bonds; \$4,250,000 first-mortgage 7 per cent. bonds and \$452,000 income 7 per cent. The first-mortgage bonds did not begin to draw full interest until Jan. 1, 1880. The interest charge which is obligatory is \$332,500 yearly, or \$1,236 per mile.

The issue of \$750,000 income bonds was authorized at the annual meeting last year. Of these \$452,000 have been taken by stockholders at 40, and the proceeds used for new shops and other improvements.

The earnings for the year were as follows:

	1880.	1879.	Increase.	P. c.
Freight.....	\$575,218.80	\$482,098.95	\$93,119.85	19.5
Passage.....	291,655.55	234,164.00	57,491.55	24.6
Mail, etc.....	84,814.08	61,035.54	23,778.54	37.3
Total.....	\$951,688.43	\$777,298.49	\$174,389.94	22.4
Expenses.....	587,550.86	525,677.04	61,873.82	11.8
Net earnings.....	\$364,137.57	\$251,620.85	\$112,516.72	44.7
Gross earnings per mile.....	3,537.88	2,889.50	648.20	22.4
Net earnings per mile.....	1,353.67	935.30	418.28	44.7
Per cent. of exps.....	61.74	67.73		

The increase in earnings was very large and reached all divisions of the road. Expenses were increased by the greater traffic, and by the higher prices for labor and material paid last year.

The income account was as follows:

Balance, Jan. 1, 1880.....	\$153,845.93
Old claims settled.....	42,081.20
Balance of income to 1880.....	\$111,764.73
Net earnings.....	364,137.57
Total.....	\$475,902.30
Interest on bonds.....	\$332,500
Rent of track and depot, Atlanta.....	5,200
Total.....	337,700.00

Balance, Jan. 1, 1881..... \$138,202.30

The old claims settled include \$11,619 for an old judgment for personal injuries, and \$30,462.20 in settlement of the claim of the state of South Carolina for back taxes.

In 1880 for the first time full interest became due and was paid on the ordinary first-mortgage bonds.

During the year 1,000 tons of steel rails, 151 tons iron rails and 59,434 new ties were used. Seneca bridge was renewed with two 150-foot spans of Howe truss; a span of Howe truss, 126 feet, replaced trestle at Enoree bridge, and another span of 40 feet was built at Walker's Mill. Pacolet and South Tiger bridges are being strengthened by sustaining arches. Richland trestle and 750 feet of Chinquippin trestle were filled in.

Atlanta yard was enlarged, and a new depot built there. The new shops and engine house at Atlanta have been completed, costing \$36,308.14. Tobacco cotton compress has proved a good investment.

The Elberton Air Line has proved a valuable feeder, and aid has been given to two other narrow-gauge branches.

Canada Southern.

This company owns a main line from Victoria, Ont., opposite Buffalo, to Amherstburg on the Detroit River, 229.2 miles; a branch from St. Thomas, Ont., to Courtright, 62.5 miles, and a branch of this last line to Petrolia, 6.5 miles. It substantially owns and works the Erie & Niagara, 31.4 miles; the Toledo, Canada Southern & Detroit (Toledo to Detroit, with connection and ferry to Amherstburg), 55.4 miles, and the Michigan Midland & Canada, 15 miles, making 298.2 miles owned and 400 miles worked. The following statements have been made for the year ending Dec. 31, 1880:

The capital stock is \$15,000,000; the authorized issue of first-mortgage bonds, \$14,000,000, of which \$13,497,311 had been issued to the close of 1879. The amount now outstanding is not stated. Cost of road is \$23,904,891.90, having been increased \$127,746.76 during the year.

The earnings for the year were as follows:

	1880.	1879.	Inc. or Dec.	P. c.
Passengers.....	\$724,066.42	\$640,154.06	I.	\$83,912.36
Freight.....	2,018,131.64	2,273,007.39	D.	645,124.25
Other sources.....	62,881.13	82,304.23	D.	19,323.10
Total.....	\$3,705,679.19	\$2,995,365.68	I.	\$710,313.51
Expenses.....	2,406,341.39	2,448,090.41	D.	41,749.02
Net earnings.....	\$1,299,337.80	\$547,275.27	I.	\$752,062.53
Gross earn. per mile.....	9,204.20	7,488.41	I.	1,715.79
Net earn. per mile.....	3,248.34	1,368.19	I.	1,880.15
P. c. of exps.....	64.94	81.73	D.	16.79

The reduction in proportion of expenses to earnings was due largely to better rates on through freight, which constitutes a very large part of the business of this road. The result of the year was as follows:

Net earnings.....	\$1,279,337.80
Interest on funded debt.....	\$407,799.61
Dividend of Feb. 1, 1881, 2 $\frac{1}{2}$ per cent.....	375,000.00
Balance to income account.....	\$516,538.19

The surplus after paying interest on bonds was equal to 5.94 per cent. on the stock.

The balance to income account has been applied to various purposes, among which is construction. To this account there have been charged during the year the following items:

New buildings.....	\$11,139.58
New bridges.....	26,785.40
New fences and crossings.....	2,023.47
New sidings.....	40,858.00
New water stations and reservoirs.....	16,170.76
New tools and machinery for shops.....	11,235.71
Land, grading and all other purposes.....	10,533.84
Total.....	\$127,746.76

The remaining portion of the balance has been devoted to the discharge of balances of the old operations of side lines, and the payment of old claims.

Houston & Texas Central.

This company owns a main line from Houston, Texas, to Denison, 341 miles; the Western Division, from Hempstead to Austin, 115 miles, and the Waco & Northwestern Division, from Bremond to Ross, 54 miles, 510 miles in all. It also owns the Texas Central, now completed from Ross to Mount Airy, 100 miles, and still under extension further. The earnings given, we believe, do not include the new extension.

The company publishes no report, but the following brief statements for the year ending Dec. 31, 1880, are taken from the *Commercial and Financial Chronicle*:

The general balance sheet is as follows:

Capital stock.....	\$7,726,960
Funded debt.....	15,234,500
State school fund loan.....	292,787
Bills payable.....	1,731,045
Interest accrued.....	60,010
Pay-rolls, vouchers, etc.....	330,030
Surplus.....	6,615,185
Total.....	\$32,029,457
Construction and equipment.....	\$24,058,522
Real estate.....	983,170
State lands.....	5,490,825
Sundry securities.....	558,982
Materials and supplies.....	340,346
Bills received and cash.....	378,045
Current accounts.....	212,561
Total.....	32,029,457



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

HOW TO LESSEN FUEL EXPENSES.

The cost of the fuel consumed on a railroad varies, of course, with the nature of the traffic, the alignment of the road, and its proximity to coal mines. On the Boston & Albany, the Lake Shore and the Chicago & Northwestern roads, it is on each about 11 per cent. of the total expenses. After making allowance, though, for the physical conditions which in a great measure control the fuel expenses, there are other considerations which determine whether the consumption will be economical or wasteful, and whether a railroad company will receive full value for the money expended or not.

On such roads as have been named, the fuel account represents an outlay of large amounts of money—on one of them of over a million of dollars. Now no experienced business man would permit the expenditure of such sums without keeping the most accurate accounts of the disbursements. There is, however, the singular fact that on many roads as soon as the money is exchanged for coal no further account is kept of what in reality represents the money. Let it be supposed that, instead of the railroad company buying the fuel the purchase of it were left to each locomotive runner, and that the company furnished him with the money to buy it. Probably the astonishment of most business men would be boundless if it was found that no separate charges were made of the amounts thus furnished to each person, and that it was all carried to a common fuel account. This, in fact, is just what is often done with the fuel itself. Each man takes all he wants, wastes as much or as little as he chooses, and is held to no responsibility for its use. It is, of course, true that if money were given to the men to buy fuel with, instead of giving them the fuel itself, the former could be converted to their own use easier than the latter can be. There is, therefore, more reason for keeping a strict account of disbursements of money than of fuel; but so far as its economical use is concerned, there is as much occasion for keeping a record of it as there would be if money were paid out instead.

The first step to be taken, then, to diminish the expense of fuel, is to keep correct accounts of the use made of it. To be of any service these must be kept in such a way that they will show where and how it was consumed, and thus indicate whenever or wherever there is any waste.

Not much reliance would be placed on a cash account which was not periodically balanced. To secure correctness it is also absolutely essential that a fuel account should be balanced from time to time.

To be able to do this the fuel must be stored in some kind of receptacles which will indicate the quantity on hand, and in keeping account of it some means must be provided for weighing or measuring it which will not involve too much expense.

Incidental to this, the question of handling coal is a very important one. It often happens that the cost of transferring it from the cars in which it is received to the tenders from which it is to be used is very much greater than is suspected, because no separate account is kept of this cost.

What seems to be the very first step, then, in diminishing the expense of fuel is to provide the most economical means of receiving, storing, handling and distributing it. A great variety of methods is employed, at different places, for doing this. These will not be described now, although if anyone would thoroughly investigate the appliances for this purpose, and write an intelligent description of them, he would be doing a good service to railroad managers and the interests which they represent.

Of course whatever plan is adopted it should be of such a character as to facilitate the weighing or measurement of the fuel received and on hand, and of that distributed to the engines. It will then be possible, and it will not be until then, to keep an account of what becomes of it.

Having the mechanical appliances for doing this, the next step is to establish a system of accounts and accounting. It is often thought that this requires no special attention or intelligence, and that simply by delegating the duty to a clerk, who, it may be, is already overworked, the department will run itself without much other attention. In other words, this duty is generally regarded as of such an elementary character that it is not worth while to employ or pay for anything more than very ordinary intelligence to conduct it. Instead of being very simple, the proper accounting for the fuel of any important railroad involves some very abstruse questions, and there is probably no department of railroad management in which an acute mind could so quickly and so certainly effect such magnificent economical results as are possible in this. It is not ordinary intelligence which will pay best, it is extraordinary capacity which will be the most profitable.

Usually the fuel accounting is assigned to the locomotive department. The wisdom of this is very doubtful. The duty of auditing accounts is never allotted to the person who incurs the expenditure. It is a principle of business that the auditor must be independent of the parties whose accounts he audits. A fuel accountant should be an auditor of the expenditure of fuel and, it is thought, be independent of those who have the care of the engines which consume it. If he occupied such a position, he would call the locomotive superintendent's attention to the fact if any of his engines burn more fuel than they should. If the latter alone is responsible for the fuel, he is unlikely to find fault with his own engines.

Altogether, then, it is believed that the best plan is to make a separate department of the fuel distribution and accounting. This can be done at comparatively little expense by appointing as fuel agent a person of some intelligence and aptitude for the work, and have him take entire charge of receiving, distributing, and accounting for the fuel. Besides the men at the distributing points, the only expense incurred will be that of a small office, two or three clerks at moderate salaries, and the stationery required.

Much of the usefulness of accounts showing the consumption of fuel of each engine will, however, be lost if they do not at the same time show the amount of work done by the engine, because, without the latter, it will be impossible to make intelligent comparisons of the performance of different engines. Reports of car mileage are, therefore, essential to the usefulness of fuel accounts.

The usual way of indicating the amount of work done is by car miles; that is, the amount of fuel consumed per trip is divided by the total number of car miles, thus showing the consumption per car per mile. There is, however, an error in this method of computing, which becomes serious if the trains are small. No allowance is made for the coal consumed by the engine in running itself. This is a very considerable amount, and is a matter of importance, if the pay of the locomotive

runners and firemen is made dependent upon the fuel consumption per car per mile, as will be shown.

After knowing accurately what becomes of the fuel, the quantity burned by each engine and the work done with it, the next matter of importance is to make it to the interest of the men who have charge of the engines to use as little as possible. The most common way of trying to effect this is to offer a premium to the man who consumes the least amount of fuel each month. While this has undoubtedly a salutary effect, within certain limits, it is open to the objection that it is a stimulus to only a few of the best men. In a little time it is shown that a few of the most skillful men and the best engines get all the premiums. The others find competition is hopeless, and therefore cease their efforts to economize. A much more effective system is one which allows extra pay to each man according to the measure of his economy. This plan has been in force on the Pennsylvania road for a number of years, and may be briefly described as follows: The trains are divided into classes and a certain amount of coal per car per mile is allowed for each class of trains. The value of half of all the coal which the engineer and fireman save out of this allowance is paid to them as a bonus at the end of the month. The amount of extra pay which is thus earned varies from a few cents up to about twenty dollars per month. It will be seen that this system makes it to the interest of every man on the road to save all the coal he can, and that a bonus is within reach of all. Of course, the more coal is saved the greater the economy to the railroad company, and we have the happy condition of things that both parties are then benefited.

The system by which the quantity of coal per car per mile is calculated, as mentioned above, does not seem to be quite fair. Thus, if a man ran an empty engine over the road he would have absolutely no allowance of fuel for doing that work, and therefore could make no bonus. If he had a train of one or two cars, the fuel consumed by the engine would be relatively so great that when divided between such a small number of cars it would make it impossible to diminish the fuel consumed per car per mile below the quantity allotted, even if he exercised the highest degree of skill and care. The just and correct method would seem to be to allow a certain quantity of fuel—to be determined by experiment—for each engine mile and then another quantity for each car mile. In this way, no matter how small the train, or with an engine alone, the men would be rewarded for their skill and care.

The relative value of the different kinds of coal as steam generators is nearly always a subject of much perplexity on railroads, and is seldom determined with any degree of certainty. The system described above suggests a method which would be certain to indicate which of a number of different kinds of coal would be the cheapest for the use of the company. The plan would be to keep several kinds on hand at the same time and permit the men to use whichever kind they preferred, and then charge the cost of the coal to them, whatever that might be. If this were done it would be necessary to make the allotment for fuel per engine and per car mile in terms of the cost and not in the quantity of fuel. That is, instead of allowing so many pounds of coal per engine and per car per mile, it would be so many cents, which would be equal to the value of the coal. What the engineer and fireman would then be obliged to aim at to secure their bonus, would be to diminish the cost and not the quantity of fuel consumed. The interest of the company is, of course, in the former, and not in the latter. Such a plan would soon lead the men to discriminate between the relative values of cheap and of high-priced coal. If, for example, there were bins in which coal from, say the Carbon, the Black Diamond and the Geological mines was stored, at prices of \$3.25, \$3.50 and \$3.75 per ton respectively, and the men were permitted to use whichever they chose, they would very quickly learn whether they could make the greatest bonus by using \$3.25 or \$3.75 coal. It would be necessary, of course, to change the allotment of cost for fuel per car mile as its price varied, but as contracts are usually made for definite periods, this would not be difficult to do.

This plan would have another good effect. The men would become inspectors of the condition of coal furnished by the seller. Usually it happens that the contracts for fuel are made by some officer of the company more or less remote from the machinery department. His object usually is to buy fuel at the lowest possible price. After the contract is made, his interest in the matter ceases, excepting so far as to know that the quantity contracted and paid for is delivered. After a good many years of intercourse with railroad affairs, we do not remember ever hearing of a railroad company which inspected the quality of the

fuel furnished by those who sold it. Generally it is delivered in cars, is stored in a great pile or in bins, and it is nobody's affair whether it is good, bad or indifferent. The temptation to the seller under such circumstances is of course to furnish a poor quality, sometimes the refuse of the mine. If the men were permitted to use whichever kind they preferred, they naturally would select that which experience indicated to them to be the best quality for its price, or that which was in the best condition, that is, coal in lumps and which has the least dirt and slate in it.

It will of course be said that this system would involve an amount of complication and expense in keeping the accounts which would be entirely inadmissible. Experience indicates, though, that there is nothing which "practical" men are so prone to exaggerate as the difficulty and expense of keeping accounts. Many of them have no experience as accountants, and little skill in systematizing any intricate mass of figures. Undoubtedly without intelligent supervision it would be difficult to keep such records, but if the duty were assigned to a separate department, such as has been suggested, under a competent head, the task, it is believed, would soon resolve itself into a comparatively simple routine.

With a full bureau of this kind organized, the accounts would very soon begin to indicate certain things: first it would appear that some engines or classes of engines, and some men, burned less coal than others. By judiciously changing the men from one engine to another it would soon become apparent how much of the economy was due to the men and how much to the engines. It would thus become easy to point out the locomotives which are wasteful and the men who are incompetent. The next step would be to remedy the defects of the one, and instruct the ignorance of the other, or, failing in the latter, get rid of them by dismissal.

Such a system of accounts, if kept as they should be, would be certain to show where and how to improve the performance of both the men and the machines. With such means of knowing what his engines are doing, the master mechanic would at least know which engines need improvement, and the effect of changes and alteration would then become apparent. Another advantage is, that the improvements of inventors could be subjected to satisfactory tests without making expensive and troublesome experiments. The work of the mechanical engineer would begin where that of the fuel account ends, the good effect of the latter being that it would indicate where improvement is needed and show its results whenever it is effected.

THE CONDITION OF TRAFFIC.

Seldom in time of prosperity do we hear so much said about the general condition of business in the country, especially as it affects railroad traffic, earnings and profits. But not only is the interest in the subject general, but the opinions expressed vary greatly from each other, and each insists with great vehemence on the correctness of his own opinion. In times of great depression there is good reason why there should be general interest in the condition of business. A few years ago a considerable general decline of traffic was almost sure to result in the bankruptcy of certain railroads, and in the postponement of the time when others could be put into a strong position. And then a general increase in traffic did much to restore confidence, and was a welcome sign of the beginning of a new era of prosperity. Now, however, such changes in traffic have much less significance. Confidence has been restored, capital is abundant, and there are hundreds of enterprises which will be prosecuted nearly the same whether we have a good or a bad wheat crop this summer.

The secret of the great interest now manifested and of the desperate energy with which opposite views are maintained is, doubtless, the great speculations in railroad stocks; or, to speak more precisely, the great speculations in these stocks on margins. For if I am convinced that the prospects of traffic and of the ruling rate of interest are such that by next September stocks will be, on the average, worth 10 per cent. more than their present prices, and acting on that conviction buy outright all the stocks I can pay for, I shall not be in the least degree anxious to have others share my opinions. Rather, especially if I expect to have more money to invest later, I shall prefer that others do not think so favorably of the situation; for then my chance of making favorable investments at low prices will be better. But it is not purchases of this kind that make the business of the stock exchanges. The man who buys a hundred or a thousand shares of Northwestern

or Lake Shore or Iron Mountain for a rise usually pays at the time of purchase but a thousand or ten thousand dollars, and he has no idea of waiting till next fall for his profit. His knowledge of the fluctuations in prices on the exchanges teaches him that among the ups and downs, before that time his margin may be wiped out. He intends to sell in a week, or at the latest, in a month or so. Consequently, just as soon as he has become "long" of stocks it is of the utmost importance to him that the investing public should believe everything that will tend to make his shares worth more—that the crops look well, that the weather is favorable, that the actual traffic is large and growing, that rates are and will be well maintained, that the average rate of interest in the country will be lower hereafter, etc. Any statements, true or false, which indicate a different condition of things he resents with the fierceness of a man defending his property. His fortune, perhaps, depends upon the public's accepting his sanguine views.

Of course those on the other side of the market, those who have "sold short," are just as much interested in having the public take an unfavorable view of the prospects of traffic—believe that the crops look badly, are very likely to be further injured, that traffic is light now and is growing smaller, that a "general demoralization" in rates is begun, which will directly make profits on through traffic no more than in the springs and summers before 1880—that is, next to nothing.

The way in which every little thing is tortured to make it support one or the other of these theories—to support either the bulls or the bears—in some of the newspapers is astonishing. The slightest groundwork of fact is made to support the most sweeping conclusions.

We do not purpose to trouble ourselves here about conclusions, but we give instead a few facts regarding the recent traffic in leading staples, so far as reported, from which the reader may see himself what traffic was in May, or in other recent periods, and how it compares with the traffic for the corresponding period in previous years.

The most important of our traffic staples is grain and the flour made from it. We have discussed the movement of these this year so fully in another article that we need give nothing further here than a consolidated statement of the receipts and shipments of grain including flour (which we have not done elsewhere).

The movement of flour and grain of all kinds (flour reduced to equivalent bushels) for the four weeks ending May 28 has been:

	1881.	1880.	1879.	1878.
Northwestern receipts....	20,929,692	26,718,472	20,200,767	29,754,561
Northwestern shipments....	24,004,113	23,174,090	22,665,367	20,863,896
Atlantic receipts....	24,533,656	24,771,137	24,219,078	27,876,433

The receipts of the Northwestern markets this year in May were much less than in 1880 and 1878, but this is sufficiently accounted for by the late spring. The shipments of these markets were a little larger this year than ever before, and the Atlantic receipts were nearly the same as in 1880 and 1879, though an eighth less than in 1878.

Next to grain, probably, the most important product of Northern farms and staple of railroad traffic is hogs.

The number of hogs packed in the Northwest in the four weeks ending May 25, and for the three months of the "summer season," then ending, were:

	1881.	1880.	Decrease.	P. c.
May.....	576,901	941,837	364,936	39.0
Three months.....	1,155,000	1,810,000	655,000	36.2

The shipments of hog products from Chicago for May were:

	1881.	1880.	Decrease.	P. c.
Pounds.....	66,716,654	115,400,183	48,683,529	42.2

In the item of barreled pork included above, the shipments from Chicago decreased from 142,645 barrels in May, 1880, to 14,387 this year—nearly nine-tenths.

Exports of hog products for the four weeks ending May 28, were:

	1881.	1880.	Decrease.	P. c.
Pounds.....	58,242,642	113,630,067	55,387,425	48.7

This immense decrease changes the increase of 27,700,000 lbs. in the exports since Nov. 1, which existed at the end of April, to a decrease of the same amount at the end of May.

Hogs are among the most important of our products, and pork, bacon and lard among the most important of our exports, and this large decrease is a somewhat serious matter. It is doubtless largely due to government interference with the importation of American pork in Europe.

The condition of the Northwestern farmers, as we have often said, is indicated very well by their purchases of lumber for building and fencing. The great lumber market is Chicago. Now receipts and ship-

ments of lumber at Chicago for the five months ending May 31 have been, in feet:

	1881.	1880.	Inc. or dec.	P. c.
Receipts.....	304,729,000	315,028,000	D. 10,299,000	3.3
Shipments.....	246,901,000	226,512,000	I. 20,389,000	9.0

Lake navigation was open much longer last year than this, which sufficiently accounts for the smaller receipts. The shipments, it appears, have been 9 per cent. larger this year, notwithstanding the late season, which has checked the demand from farmers for building and fencing.

Through shipments of freight of all kinds to the East by rail from Chicago in the four weeks ending May 28 have been:

	1881.	1880.	Increase.	P. c.
Tons.....	123,148	114,770	8,378	7.3

Coming to a mineral product of the first importance in our great iron industries, we find that shipments of Lake Superior iron ore from the opening of navigation to June 1 were:

	1881.	1880.	Decrease.	P. c.
Tons.....	207,807	268,422	60,615	22.6

As navigation was open about twice as long last year as this, the showing is favorable to this year.

Vastly more important than the iron ore is the coal, the production of which everywhere east of Ohio and north of the Potomac is reported quite completely. In this territory the shipments of anthracite, semi-bituminous and bituminous coal and coke for the month of May were:

	1881.	1880.	Increase.	P. c.
Tons.....	2,754,459	2,355,248	399,211	17.0

There is an increase of 22½ per cent. in anthracite, 18½ in semi-bituminous, 31 in coke, with a decrease of 29 per cent. in bituminous. The anthracite production for the five months is 17½ per cent. more than last year and more than in any previous year; for May the anthracite production was larger in 1879 by 18 per cent. than this year.

The great cotton crop of last year has made the cotton movement of the crop year (beginning with September) much larger than ever before. By far the larger part of the crop is always marketed in the first half of the crop year. For the four weeks ending May 27, the seaboard receipts have been:

	1881.	1880.	1879.	1877.
Bales.....	178,783	100,575	72,714	82,301

The May movement is 78 per cent. larger this year than last, when it was larger than in any previous year.

Finally we come to petroleum, which is an important export. The exports of petroleum in May for four successive years have been:

	1881.	1880.	1879.	1878.
Gallons.....	33,407,915	15,995,980	25,798,815	18,666,948

Thus the exports this year were twice as great as last year. The exports of this staple vary so greatly from month to month that the course of the trade cannot be judged by a single month's business. For the five months ending with May, however, the exports this year are larger than last or any previous year.

We have here collected statistics for traffic in May for all the leading staples for which we have reports. Of these only one, hogs and hog products, shows a marked decrease in comparison with last year, and all but hogs and grain an increase, which in some cases is very large. The comparison is made with a year and a month when traffic was extraordinarily heavy, and when for grain the season was much more favorable than this for a heavy movement. It would seem, then, that whatever the prospects for the future may be, no decline in traffic has yet set in. For June we expect a larger grain movement than last year, but as to the other staples we are unable to judge. As for the prospects after harvest, there is plenty of time for a good crop to mature in fine condition, or for the grain to fail disastrously.

THE GRAIN MOVEMENT FOR FIVE MONTHS.

With May we have the grain movement affected by the opening of lake and canal navigation. Though this opening was unusually late this year, yet we shall see that the movement was greatly affected by it, receipts and shipments of lake ports being greatly stimulated, and also the receipts of the ports at the Atlantic termini of the long-closed waterways, New York and Montreal. The season was so much later than last year that we must remember, in making our comparisons, that lake shipments were made for but half as many days as last year, and the Erie canal but one third as many.

For the five months ending May 28, receipts and shipments of grain of all kinds at the reporting Northwestern markets (St. Louis, Peoria, Chicago, Milwaukee, Detroit, Toledo and Cleveland), and shipments at

the seven Atlantic ports have been, in bushels, for the past eight years:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1874.....	62,391,296	42,578,405	50,208,341
1875.....	47,210,000	30,607,467	41,374,920
1876.....	55,528,548	47,437,052	58,020,017
1877.....	46,486,389	35,180,653	46,541,381
1878.....	78,112,524	62,185,390	80,118,174
1879.....	73,247,260	59,329,718	91,849,115
1880.....	91,377,062	69,544,101	90,833,348
1881.....	72,697,718	63,309,064	80,144,155

The receipts of the Northwestern markets have thus been one-fifth less than in the corresponding five months of 1880, and also less than in 1879 and 1878.

This decrease in grain receipts, however, was partly made up by an increase in flour receipts, said increase being equivalent to about 5,625,000 bushels. The shipments of these markets were 9 per cent. less than last year, but larger than any previous year, and an increase in flour equivalent to 6,120,000 bushels of wheat just about balances the decrease in grain receipts. Last year the grain receipts of these markets were 21,833,000, this year but 9,389,000 bushels, more than their shipments for the five months. The Atlantic receipts this year were 11 per cent. less than last year, and were the smallest for four years. They were but 16,800,000 bushels more than the shipments of the seven great Northwestern markets, while the difference was 21,300,000 in 1880, 32,500,000 in 1879, and 27,000,000 in 1878 indicating that the proportion of grain shipped through from the farmers' stations without reaching one of these Western markets was exceptionally small this year. The conditions having changed greatly since the close of navigation, we give below the May movement (four weeks) separately:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1877.....	10,200,526	8,806,887	12,007,057
1878.....	21,752,885	18,890,579	25,024,972
1879.....	17,951,153	20,291,415	20,935,131
1880.....	24,647,190	20,983,526	21,546,158
1881.....	17,967,405	21,349,595	20,570,794

The receipts of the Northwestern markets are more than a quarter less in May this year than last, while the shipments are actually larger. The explanation is the lateness of the season. In 1878 we had a very early spring (the lakes opening April 1), and the May grain receipts of the Northwestern markets were unusually great; the next year the spring was some weeks later, and the grain receipts were much less. In 1880 again there was an unusually early spring, and the receipts of the Northwestern markets were the largest ever known. This year we have an extraordinarily late spring, and Northwestern receipts are comparatively small again. In such years as this June is the month of heavy grain shipments from the farmers, if they have grain to ship, and the daily reports from Chicago indicate that the heavy receipts have now fairly begun.

The grain movement is this year so much affected by the great and sudden increase in the amount of flour manufactured and shipped that we give the flour movement separately as follows, in barrels:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1874.....	2,781,879	2,545,441	4,618,377
1875.....	1,903,370	2,007,936	3,685,914
1876.....	2,155,160	2,317,311	3,707,705
1877.....	1,750,401	1,757,608	2,845,987
1878.....	2,381,612	2,163,221	3,390,177
1879.....	2,569,194	2,698,513	3,991,943
1880.....	2,249,383	2,010,034	3,419,990
1881.....	3,382,970	3,294,405	5,168,425

Thus after several years, in which the flour movement had been comparatively stationary, we have this year an increase of 50 per cent. in the Northwestern receipts, of 64 per cent. in the Northwestern shipments, and of 51 per cent. in the Atlantic receipts. The Northwestern receipts and shipments of flour have been chiefly at Chicago and Milwaukee, and the Atlantic receipts chiefly at New York and Boston.

Rail rates having been maintained well this year and last, it is interesting to see what the effect on rail shipments has been. Owing to the different times of the opening of navigation, a comparison of the proportions by rail in different years has no value, the lakes carrying but four weeks in one year, and nine in another. But for the periods of various length, from the opening of navigation to the end of May, the percentage of shipments by rail in six successive years has been:

Year.	1876.....	1877.....	1878.....	1879.....	1880.....	1881.....
.....	32.4 p. c.	41.1 "	32.0 "	47.8 p. c.	28.6 "	29.3 "

Showing a much reduced proportion in the last two years.

This year the shipments by lake and river since lake navigation opened have been 15,093,524 bushels, against 6,256,071 bushels by rail, or 70.7 per cent. of the whole; that year the water shipments (the time being twice as long) were 29,156,104 bushels, against 11,689,794 by rail, the water shipments being 71.4 per cent. of the whole—very little difference. The rail and water shipments in May (the lakes being open

throughout the month every year, except three days this year) have been, for six years:

Year.	1876.....	1877.....	1878.....	1879.....	1880.....	1881.....
.....	6,256,071	6,178,461	8,949,732	7,729,191	3,602,555	7,957,022

In every year, except the last two and 1877, railroad wars made the rail rates so low that there was very little advantage in shipping by lake. The proportion and quantity shipped by rail were nearly the same this year as last, but the quantity less than in the other years, except 1877 (when there was very little grain to ship), and the percentages very much less.

The receipts of the several Northwestern markets for the five months in the last two years have been as follows:

Year.	1880.....	1881.....	Inc. or Dec. P. c.
Chicago.....	25,375,221	39,037,154	Dec. 13,661,933 55.0
St. Louis.....	15,814,193	17,842,218	" 2,028,025 12.8
Peoria.....	10,081,255	8,518,915	Inc. 1,562,350 15.3
Toledo.....	8,528,943	11,178,611	Dec. 2,649,668 23.7
Milwaukee.....	5,317,356	6,031,186	" 713,830 13.8
Detroit.....	3,103,429	2,602,397	Inc. 501,032 16.3
Cleveland.....	1,877,873	1,049,838	" 828,035 43.8
Total.....	70,068,213	87,134,440	Dec. 17,066,227 24.3

Thus by far the larger part of the decrease has been at Chicago, but there was a decrease also at St. Louis, in spite of the barge lines. In view of this the large increase at Peoria is surprising. At Toledo the decrease is next to that at Chicago. The increase at Detroit was doubtless due to the fact that the wheat crop of Michigan was extraordinarily large last year; for Detroit receives little except Michigan grain.

The percentages of the total received at each place in these two years have been:

Year.	Chicago.....	St. Louis.....	Peoria.....	Toledo.....	Mil'kee.....	Detroit.....	Cleve.....
1880.....	36.2	22.5	14.4	12.2	7.6	4.4	2.7
1881.....	44.8	20.5	9.8	12.8	6.0	3.1	1.9

Last year Duluth was credited with 0.3 per cent. of the receipts; this year no Duluth receipts have been reported as yet.

The gains in percentage this year have been 4.6 at Peoria, 2 at St. Louis, 0.7 at Cleveland, 1.3 at Detroit, and 0.8 at Cleveland; the losses, 8.6 at Chicago, and 0.6 at Toledo. The loss of Chicago in grain has been partly made up by a gain in flour.

The receipts of the seven Atlantic ports for the last five years have been, for the five months, in bushels:

Year.	1877.....	1878.....	1879.....	1880.....	1881.....
New York.....	15,145,973	40,113,683	36,132,880	37,346,229	34,237,611
Boston.....	5,125,103	6,710,030	7,935,626	8,202,791	8,510,508
Portland.....	689,493	1,383,721	962,079	1,430,030	1,102,672
Montreal.....	1,235,051	1,885,149	1,616,805	1,741,348	1,578,160
Philadelphia.....	7,623,149	16,575,910	18,161,920	16,072,610	9,387,554
Baltimore.....	18,014,884	15,636,900	20,235,450	16,068,467	14,811,571
New Orleans.....	3,855,657	6,734,589	6,245,733	9,300,068	9,082,475
Total.....	46,591,000	89,095,932	91,333,592	90,832,041	78,699,455

There is a small gain this year over last at Boston, but everywhere else a decrease, which at Philadelphia is very large, and proportionately smaller at New Orleans. The decrease in the aggregate is 13½ per cent., and in amount 12,200,000 bushels, of which 6,685,000 were at Philadelphia, 3,100,000 at New York and nearly 1,900,000 at Baltimore.

The percentage of the total receipts arriving at each port each year has been:

Year.	1877.....	1878.....	1879.....	1880.....	1881.....
New York.....	32.5	45.0	39.5	41.1	43.5
Boston.....	11.0	7.5	8.7	9.0	10.8
Portland.....	1.5	1.6	1.1	1.6	1.4
Montreal.....	2.7	2.1	1.8	1.9	1.9
Philadelphia.....	16.1	18.6	19.9	17.7	12.0
Baltimore.....	27.9	17.6	22.2	18.4	18.8
New Orleans.....	8.3	7.6	6.8	10.3	11.6
Total.....	100.0	100.0	100.0	100.0	100.0

Thus with the exception of 1878, New York's proportion is largest this year; Philadelphia's is much the smallest this year; Baltimore's larger than last year or in 1878, but much smaller than in 1877 and 1879; New Orleans' largest this year.

Comparing New York with Philadelphia and Baltimore taken together, we have:

Year.	1877.....	1878.....	1879.....	1880.....	1881.....
New York.....	32.5	45.0	39.5	41.1	43.5
Philadelphia and Baltimore.....	44.0	36.2	42.1	36.1	30.8
The three cities.....	76.5	81.2	81.6	77.2	74.3

The two southern cities have a smaller proportion of the grain receipts than in any of the four preceding years. In three out of the five years they have received less than New York; in 1879 New York received 6 per cent. less than the two, in 1880 13¼ per cent. more, this year 41 per cent. more. The gain in rank (percentage of total receipts) was nearly twice as great at New York as at New Orleans, and the gain at Boston larger than at New Orleans.

Taking New York and Boston together, and comparing with Philadelphia and Baltimore, we have:

Year.	1877.....	1878.....	1879.....	1880.....	1881.....
New York and Boston.....	43.5	52.5	48.2	50.1	54.3
Philadelphia and Baltimore.....	44.0	36.2	42.1	36.1	30.8
The four cities.....	87.5	88.7	90.3	86.2	84.7

The two northern cities have thus received a larger proportion of the whole this year than in any of the four previous, as the two southern ones have received a smaller proportion. The gain of the former, however, is less than the loss of the latter since last year, owing to the larger proportion going to New Orleans.

Further, the flour receipts, not included above, have

increased greatly this year, and all but a small part of the increase has gone to New York and Boston.

The opening of navigation has already greatly improved the New York receipts, although the opening was so late that probably there were no receipts in the period covered (which closes with May 28, not the 31st) of canal grain shipped from Buffalo; but an unusually large amount wintered on the canal, where it was caught by the early frosts, and nearly all that arrived. At the end of April New York had received but 39 per cent. of the whole, and its proportion was brought up to 43½ in four May weeks, during which it received more than a third of its total receipts for the 21 weeks of 1881. The percentages of the total received by the several ports in the several months have been:

Year.	January.....	February.....	March.....	April.....	May.....
New York.....	30.7	35.4	36.0	43.8	56.4
Boston.....	17.6	12.6	9.9	11.3	7.2
Portland.....	2.3	2.5	0.9	1.5	0.7
Montreal.....	0.7	0.4	0.3	0.3	6.3
Philadelphia.....	11.8	16.5	13.4	8.8	11.8
Baltimore.....	19.7	23.2	26.2	18.4	10.8
New Orleans.....	11.2	9.4	13.3	15.0	6.8

Boston seems to have lost much of what New York has gained in the last month, but it is probably more accurate to say that Boston, or Boston and Portland together, have lost most of what Montreal has gained, the latter city having substantially no receipts until navigation is open. The great falling off at Baltimore in May is noticeable, but it is not unusual at this time of the year; Baltimore received 21.7 per cent. of the whole in April and 21.3 in the four months ending with April last year, and only 8.7 per cent. in May. New Orleans has a much smaller percentage in May than in any previous month of the year, but not so small a percentage as in May last year (6.8 per cent. this year and 4.9 last).

The full advantage of the canal will be felt first in June, when, too, Montreal will feel throughout the advantage of its water route, which it did but three weeks in May.

Reduction of East-Bound Rates.

Last Tuesday Commissioner Fink gave notice that on application of the New York Central & Hudson River Railroad the rates on the seventh and eighth classes (grain and flour and provisions) would be reduced to the basis of 5 cents per 100 lbs., that is to the basis of 25 cents for grain and flour and 30 for provisions from Chicago to New York, to take effect the next day, and subject to advance without notice. This is a reduction of the same kind as was made at the beginning of April, provided for by the agreement of March 11, according to which when shipments are taken anywhere by any line at less than the regular rate, on complaint the Commissioner may reduce the regular rate for all places and shippers to a level with the reduced price so irregularly granted.

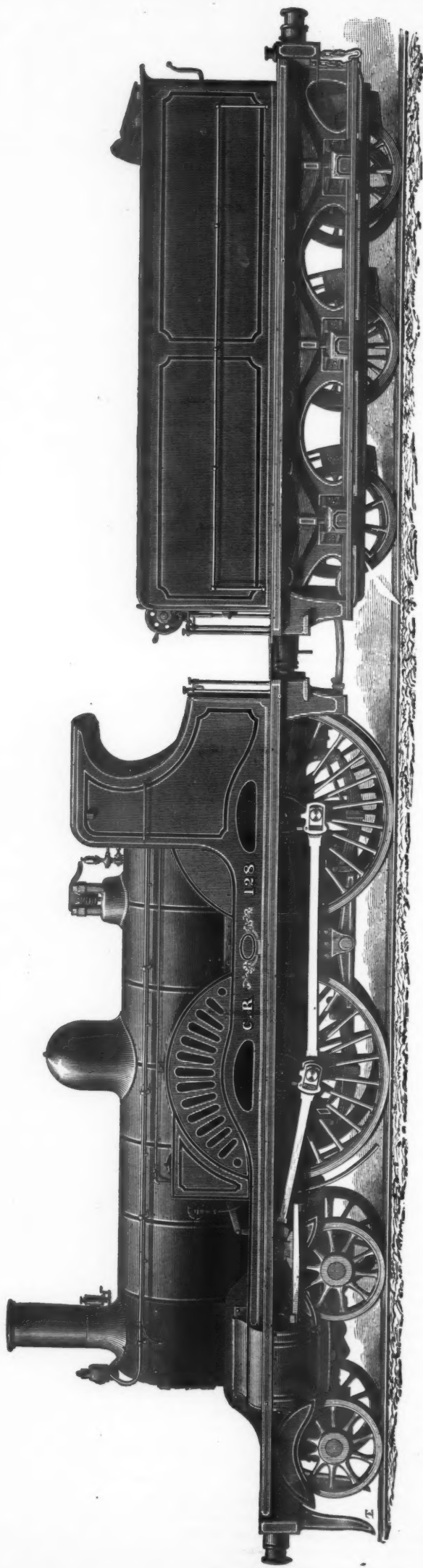
The irregularity in this case was not easily traced. For some time shipments by the Erie were exceptionally large and by the New York Central exceptionally small, and heretofore when this has been the case the company losing traffic has usually set about recovering its position without troubling itself as to the cause of the diversion of business. Whether due to cutting rates or to other natural causes it was looked upon as a condition to be remedied at the earliest possible moment and by any means that would be effective. It is one of the signs of the better condition of things that now even the most aggressive traffic managers take things more coolly, and are willing to wait and inquire and negotiate before taking a step which makes necessary a reduction of rates. In this case we do not know that the cause of the large diversion of traffic has been traced. Of course some irregularity must have been discovered in order to warrant the reduction; but the one discovered may not have been the cause of the change in the current of traffic.

At all events, the Erie denies participating in any reduction of rates. There have been for some time reports in the newspapers that rates were being cut, but no other evidence has been presented than the amount of the shipments and the difference between the regular rail rate and the lake and canal rates. But, though rail shipments have been considerable, they have not been suspiciously large from the lake ports. Lake and canal rates are higher than at some times last year when rail shipments were satisfactory at a 30-cent rate and the demand from Eastern interior points is supplied by through rail shipments even when the rates are much higher than by water.

We thought it doubtful some weeks ago whether a 30-cent rate could be maintained through this summer; but the condition of things since navigation opened favored the maintenance of such a rate. Although the season was such that comparatively little grain could be brought to the lake ports in May, and there was a considerable addition to the lake marine, yet the demand for vessels has been such that they have been able to secure remunerative rates—on the average quite as high as last year in May (higher in the first half and lower in the last half of the month). And as the grain is now coming forward rapidly—much more so than in May—it seemed probable that lake rates would advance and the railroads get a larger traffic at the full rate, which then could be held until after the harvest at least. This reduction comes now at a very bad time; for the traffic promises for a few weeks to be heavy. It is doubtful if the railroads will get any more at the lower rates, for the vessels will certainly get

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ENGLISH PASSENGER LOCOMOTIVE.

Built by Neilson & Co. for the Caledonian Railway.

cargoes, whatever the rates, as they have nothing but grain to depend upon, and must carry that or tie up. And it may not be so easy to advance rates as to reduce them.

All the loss that may result, however, must be looked upon as a fine for malpractice, and a penalty for neglecting to pool the traffic. If the business had been divided, as has been so often urged, no trouble could have occurred.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Philadelphia & Long Branch.—Track laid from Whitings, N. J., east to beyond Tom's River, 10 miles.

Denver & Rio Grande.—The *San Juan Division* is extended from Chama, Col., westward to Amargo, 22 miles. The *Silver Cliff Branch* is extended from Soda Springs, Col., southwest to West Cliff, 18 miles. Gauge, 3 feet.

Cincinnati, Van Wert & Michigan.—Completed from Van Wert, O., southward to Shane's Crossing, 12 miles. Gauge, 3 feet.

Galveston, Harrisburg & San Antonio.—Extended from San Antonio, Tex., west to Leon, 9 miles.

International & Great Northern.—Extended westward to Chican, Tex., 8 miles.

St. Louis Ft. Scott & Wichita.—The first track is laid from Ft. Scott, Kan., west 15 miles.

This is a total of 94 miles of new railroad, making 1,574 miles thus far this year, against 1,500 miles reported at the corresponding time in 1880, 661 miles in 1879, 413 miles in 1878, 570 miles in 1877, 628 miles in 1876, 296 miles in 1875, 637 miles in 1874 and 1,171 miles in 1873.

THE CHICAGO, ROCK ISLAND AND PACIFIC, at the annual meeting last week, submitted a summary of the annual report for the year ending March 31, which is the first, we believe, that comes down so late, and covers the last terrible winter. With a slight increase of mileage (from 1,311 to 1,353½ at the end of the year), the changes in earnings and expenses were:

	1880-81.	1879-80.	Increase.	P. c.
Gross earnings.....	\$11,956,907	\$11,061,662	\$895,245	8.1
Expenses and taxes.....	6,630,155	5,796,546	833,609	14.4
Net earnings.....	\$5,326,752	\$5,265,116	\$61,636	1.2

The considerable increase in earnings was thus nearly balanced by the large increase of expenses, largely due to the severe winter, and the increase in net earnings was trifling. The latter, however, were extraordinarily large the year before, and after paying interest and rentals and the 7 per cent. dividends on the stock this year, there remained a surplus of \$1,327,529, besides the \$490,000 received from the sales of land, making together nearly enough for 4 per cent. more on the stock. This surplus was nearly all invested in additions and improvements of the company's property. For the last six years the earnings, expenses and net earnings of this company have been:

Year.	Gross earnings.	Expenses.	Net earnings.
1875-76.....	\$7,342,190	\$3,655,161	\$3,687,029
1876-77.....	6,917,657	3,568,293	3,349,364
1877-78.....	7,895,870	4,384,514	3,511,356
1878-79.....	9,409,833	5,079,873	4,329,960
1879-80.....	11,061,662	5,796,546	5,265,116
1880-81.....	11,956,907	6,630,155	5,326,752

This is certainly the showing of a very solid property. It does not need to improve in order to be one of the most valuable in the country. Yet there is room for a large increase of population and traffic on its Iowa and Missouri lines, and the new railroad projects so far do not greatly interfere with its territory. The approaching completion of the Wabash's line to Council Bluffs, and later the St. Paul's to the same place, will doubtless lessen its share of the Omaha traffic, and the latter line for about 150 miles, being between it and the Northwestern, will attract some of the local traffic which now reaches the Rock Island stations from the country north of them between Des Moines and the Missouri. But what these attract will doubtless be much more than made up by the growth of traffic. Most of the company's granted lands must be disposed of now (a year ago 185,000 acres were left), but probably a million of dollars or more remain to be paid for them by the buyers.

AN INTERNATIONAL CONGRESS OF CONTRACTORS is to be held at Liège, Belgium, from the 24th to the 26th of July next. At the same place, and lasting from July 24 to August 31, there will be held in connection with this Congress an exhibition of new machines, and of improved engines and materials, all under the patronage of the Liège Chamber of Contractors for Public Works. Objects intended for this exhibition will be admitted free of duty, and can be transported in cars directly upon the exhibition grounds at the Longdoz station, at specially low rates (free one way) for railroad transportation. Applications for space should be made to the Chamber's committee for organizing the exhibition, of which E. Hargot is President and Em. Voituren, Secretary. A copy of the regulations of the exhibition and of the form on which intending exhibitors apply for admission may be seen at the office of the *Railroad Gazette*, also copies of the regulations of the Congress of Contractors, and of the form on which persons wishing to attend as members subscribe to these regulations, and the programme of exercises.

The Committee calls upon "all persons engaged in the art of construction" to propose additions and modifications of this programme. The questions for discussion on this programme are very numerous, among them being the relative advantages and disadvantages of contracts of different kinds, as for a lump sum with a forfeit, at a scale of prices, etc.; of paying men by the task or by the day; insurance of workmen against accidents; benevolent institutions in favor of

workmen, as provident funds and hospitals; bonds or other security for performing work; accounts; payments; methods of letting contracts; the documents to be deposited by those let contracts in advance of the letting; progress of the art of construction, tools and methods; various machines (as for brick-making, crushing, pumping, pile-driving, rock-drills, transporting materials, scaffolding, for foundations under water); a study of one of the forms of contract of the Belgian Department of Public Works, etc. Further information may be had by addressing the President of the Chamber of Contractors, E. Hargot, at Liège, rue Dartois, 15.

Considering the enormous extent of the engineering works in progress in the United States, it would seem that the proceedings of this Congress should have much interest here.

MR. FRANKLIN B. GOWEN is at last forced from the presidency of the Philadelphia & Reading Railroad Company, but it is not safe to conclude that this will put an end to his active management of the company. The road is in the hands of receivers, whose active managing member is Mr. Gowen, and his defeat as President of the company does not in any way affect his position as receiver. The Court which exercised its discretion in appointing him to that position will exercise it also in keeping him there. If his defeat had been at an ordinary election and was plainly due to the votes of a majority of all the shares, then the Court might well consider that the parties in interest would be better suited with another man. But, as is known, Mr. Gowen at the time of the election had proxies for a majority of all the shares; and he was defeated only because he did not have a majority of those registered so as to be qualified to vote at the regular time of election last January, who were also the only legal voters at the postponed election. Now if a motion is made to have Mr. Gowen removed from the receivership because of the vote of stockholders which removed him from the presidency of the company, he will doubtless show that he has actually the support of a majority of the shares, so that, though not legally elected, because not all those shares were qualified to vote at the time, he represents the whole body of shareholders better than the actually elected board; and the Court is not at all bound to have the company's officers represented among the receivers, but aims only to protect the interests of all concerned; the bondholders' interests, however, are much greater than the stockholders', and the Court doubtless bears these in mind chiefly.

But what the change of officers probably does put an end to for the time is any further prosecution of the Gowen plan of setting the company on its feet again, while it gives the new board a chance to try a new scheme. But it is now but seven months before the next regular election will take place; and if Mr. Gowen shall then hold the stock proxies that he now has (or lately had), of course he and his friends will be elected, and be able to go on again, after this short interregnum.

PETROLEUM EXPORTS have become very heavy of late, so much so that for the first five months of this year they exceed those of any previous year, as shown below, where the total exports, in gallons, for five successive years, are given for the five months ending with May:

	1877.	1878.	1879.	1880.	1881.
114,522,181	91,279,878	114,287,577	124,393,850	134,073,600	

The exports this year are thus 8 per cent. more than last year, and 16 per cent. more than in 1879 or any previous year. But a month ago the exports were less this year than last, and there are quite commonly so great fluctuations in the exports of this article that it is impossible to say, because they may be large for a given month or series of months, that they will be so for the year. For instance, the exports in January were 42 per cent. less this year than last, while the April exports this year were 50 per cent., and the May exports 109 per cent. greater than last year. In January, last year, the exports were nearly 40,000,000 gallons, in May but about 12,000,000. This year there is an increase from 18,000,000 in April to 33,400,000 in May.

New York not only maintains but increases its lead as the chief exporter. For the five months the percentage of the total going by each of the leading ports has been:

	1881.	1880.	1879.	1878.
New York.....	82.7	77.2	70.8	71.3
Philadelphia.....	12.2	16.5	17.0	14.3
Baltimore.....	2.6	5.5	9.0	13.1
Boston.....	2.5	0.8	1.9	1.3

Thus Baltimore, which exported more than an eighth of the whole in 1873, this year exported only about a fortieth of the whole. Philadelphia still has large exports, though a fifth less in amount than in 1879 and in 1880. The change is, doubtless, largely due to the development of the Bradford oil region, almost on the Erie road, and though connected by pipe lines with the other roads, apparently finding an outlet best by the New York roads, or at least to New York.

THE DESTRUCTION OF A RAILROAD by natural causes seems to have occurred for the first time in this country, when the flood and ice gorges of the Missouri swept away or buried nearly the whole of what was formerly the Dakota Southern Railroad (now the Sioux City & Dakota Division of the Chicago, Milwaukee & St. Paul) from Yankton to Sioux City, 60 miles. A correspondent of the *New York Tribune*, writing from Yankton June 1, says: "Down the valley winds the wrecked or buried track of a once prosperous railway, and its cars are crushed and its offices closed for 60 miles, and not a whistle of a locomotive has been heard in Yankton since March 28." Perhaps, however, the destruction of the railroad is a less misfortune, even to it, than the laying waste of the fertile and well peopled country

from which it drew its support. The whole bottom land of the Missouri, about 10 miles wide, from Yankton to Sioux City, was swept by a flood, carrying fields of ice many feet thick, that drove everything before it, and cut off large trees, destroyed or removed every building, and left the land buried under mud, sand and driftwood, and sheets and hills of ice that even yet have not wholly disappeared. The farmers generally lost everything, even their farms for the present, as the water and ice disappeared too late, even where the debris has not buried the soil. How large a part of the land is permanently injured does not yet appear; but doubtless the fear of a repetition of the disaster (for which, however, there is no precedent either in history or tradition) will hinder the future growth of this valley, which has been exceptionally fertile and the most thickly peopled part of Dakota.

MISSISSIPPI RIVER GRAIN SHIPMENTS we would expect to effect a reduction of the grain business of Chicago and Peoria more than of any other Western markets. Now the receipts of these three markets in March, April and May this year and last have been:

		Chicago.	Peoria.	St. Louis.
March,	1881.....	4,631,357	1,993,930	4,545,569
	1880.....	9,238,606	2,188,625	4,835,483
April,	1881.....	4,547,900	2,432,595	4,292,316
	1880.....	4,650,408	1,570,595	2,647,644
May,	1881.....	7,446,748	2,558,035	3,433,125
	1880.....	14,320,414	2,052,360	2,688,818

St. Louis received 400,000 bushels less in March this year than last, Peoria 200,000 less, but Chicago 4,600,000 less—its railroads being badly blockaded much of the month. In April St. Louis received 1,000,000 bushels more this year than last, but Peoria also 900,000 more, and Chicago 100,000 less. In May St. Louis received 750,000 bushels more this year, Peoria 500,000 more, but Chicago 6,900,000 less. In this last month, however, Chicago receipts were greatly diminished by the lateness of the season, which has kept the farmers in their fields a month later than last year, and has postponed the heavy shipments, as is indicated by the fact that 37 per cent. of the Chicago receipts for May were in the last week of the four. But the indications are that before the opening of lake navigation the grain that St. Louis gets is at the expense of Chicago, but that the receipts of Peoria, which is half way between the two, are not much affected by the river shipments.

LAKE RATES kept up pretty well during the week ending with Wednesday last, most of the time being quoted at 4½ cents a bushel for corn and 5 cents for wheat from Chicago to Buffalo, but falling Tuesday ½ to ¼ cent.

No change in canal rates has been reported, quotations being uniformly 5 cents a bushel for wheat, 4½ for corn and 3½ for oats from Buffalo to New York.

Ocean rates on grain have fluctuated very little, most quotations from New York to Liverpool being at 3d. per bushel. Quotations from Baltimore and Philadelphia, both by steam and by sail, have been lower than from New York for some weeks, and from New Orleans a rate of 5s. 6d. per quarter (=8½d. per bushel) by sail to Cork for orders has been common, against 3s. 6d. from New York. All these ocean rates are exceptionally low, little more for the 2,700 miles from New York to Liverpool than for the 950 miles of lake navigation from Chicago to Buffalo, and not more than a common railroad rate for 60 or 70 miles. It must be an unprofitable rate for sailing vessels which get no cargoes on the return voyage (as most of them cannot, the merchandise freight going almost exclusively by steamers) and the imports of pig iron, rails, etc., being totally inadequate to give cargoes to all the sailing vessels. The steamers are having such receipts from passengers that they probably are making good earnings in spite of the low freights.

NEW ORLEANS GRAIN RECEIPTS have usually fallen off after the opening of lake navigation, when the river route meets the competition of lake vessels and canal boats. They have done so this year, and very largely, though, as the lakes opened late this year, perhaps the full effect of their competition is not yet felt. New Orleans receipts in the three spring months for five successive years have been, in bushels:

	1877.	1878.	1879.	1880.	1881.
March.....	838,879	1,101,596	1,505,113	1,758,592	2,168,169
April.....	1,213,063	1,282,209	1,734,030	2,898,172	3,472,611
May.....	976,016	1,179,213	1,060,290	1,057,551	1,406,961

The receipts are for four weeks in March and May, and for five in April. Last year lake navigation was open throughout April, yet the New Orleans receipts were largest then (580,000 bushels a week, against 440,000 in March and 264,000 in May); this year they were also largest in April (694,000 bushels a week, against 542,000 in March and 352,000 in May). It is to be said that its receipts for the last week in May were larger than in any other week of that month, and that heavy river shipments are yet to arrive there.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Technical Conventions.

The *Master Mechanics' Association* will hold its fourteenth annual convention in Providence, R. I., beginning Tuesday, June 14. Headquarters for members will be at Narragansett Hotel.

The *Master Car-Builders' Association* will hold its fifteenth annual convention in the city of New York, beginning June 14.

The *American Society of Civil Engineers* will hold its thirteenth annual convention in Montreal, Canada, beginning June 15.

Dividends.

Dividends have been declared as follows:
Connecticut River, 4 per cent., semi-annual, payable July 1.
Union Pacific, 1½ per cent., quarterly, payable July 1. Transfer books close June 11.
Flint & Pere Marquette, 2½ per cent. on the preferred stock, payable June 15. This is the first dividend on this stock, which represents the old consolidated bonds.
Morris & Essex (leased to Delaware, Lackawanna & West ern), 3½ per cent., semi-annual, payable July 1. Transfer books close June 10.
New York & Harlem (leased to New York Central & Hudson River), 4 per cent., semi-annual, payable July 1.
New York Central & Hudson River, 2 per cent., quarterly, payable July 15.
Northern Central, 3 per cent., semi-annual, payable July 15.

The Rensselaer Polytechnic Institute Commencement.

The Commencement of this venerable school of science, which has educated a very large number of engineers, takes place during the coming week. The alumni will find it of more than usual interest, as a prominent member of the Association, the Hon. Clarkson N. Potter, is to deliver the address to the graduates on the 15th (Wednesday evening), and a reception is to be given them on Tuesday evening. At the meeting of the Association on Wednesday, business of importance will probably come up.

The faculty, in making the social element more prominent, are taking a sure means of increasing the popularity and usefulness of this deservedly successful institution.

Southwestern Railway Association.

At a meeting in Chicago June 2, at Commissioner Midgley's office, there were present J. C. McMullin, C. H. Chapell, James Smith and James Charlton, Chicago & Alton; C. E. Perkins, T. J. Potter and Percival Lowell, Chicago, Burlington & Quincy; R. R. Cable, J. T. Sanford and E. St. John, Chicago, Rock Island & Pacific; Jay Gould, S. H. Clark, A. A. Talmadge and J. H. Hill, Missouri Pacific; A. L. Hopkins, J. C. Gault and H. C. Townsend, Wabash, St. Louis & Pacific; J. F. Tucker and A. H. Hanson, Illinois Central. The Chicago Tribune's report of the proceedings says that it was decided that both the freight and passenger matters should be taken into consideration. A proposition was made to appoint three arbitrators to adjust all difficulties regarding the freight and passenger troubles, which was voted down. A motion was then made that Mr. C. W. Smith, General Manager of the Chesapeake & Ohio Railroad, should be made sole arbitrator, which shared the same fate as the previous resolution. A motion to make Commissioner Midgley sole arbitrator was also voted down. Finally a resolution was adopted that a committee of five should be appointed, consisting of two freight men, two passenger men, and Commissioner Midgley, to recommend and submit to a meeting to be held in Chicago, June 14, a plan for the adjustment of the present freight and passenger difficulties, and also for disposing of the unlimited ticket difficulties. The plan is to provide for a pool on freight and passenger business, and is to set forth what territory should be included and what percentages should be allotted to the various lines.

Mr. James Smith, General Freight Agent of the Alton, and Mr. E. P. Ripley, General Freight Agent of the Burlington, were appointed as the Committee for the freight interest, and Mr. France Chandler, General Passenger Agent of the Missouri Pacific, and Mr. H. C. Townsend, General Passenger Agent of the Wabash, for the passenger interest.

ELECTIONS AND APPOINTMENTS.

Boston & New York Air Line.—This company has re-elected H. B. Hammond, President; F. H. Watson, Secretary; D. B. Hatch, Treasurer.

Breakwater & Frankford.—At the annual meeting in Georgetown, Del., June 1, the following directors were chosen: N. L. McCready, John Bodine, Henderson Moore, Thomas Baumgardner, Charles C. Stockley, Benjamin Burton, John J. Long, Wm. S. Phillips, Eben Tunnell. The board elected Charles C. Stockley President; Benjamin Burton, Secretary; David Houston, Treasurer. The road is controlled by the Old Dominion Steamship Company.

Canton Co.—At the annual meeting in Baltimore, June 8, the following directors were chosen: Walter B. Brooks, George S. Brown, Wm. H. Graham, Wm. G. Harrison, Charles G. Weber, Baltimore; A. B. Baylis, James B. Colgate, George F. Stone, L. Von Hoffman, New York. The board elected Walter B. Brooks President; Wm. H. Graham, Vice-President; Wm. W. Janney, Secretary and Treasurer. The company owns the Union Railroad and tunnel in Baltimore.

Car Accountants' Association.—At the recent annual convention the following officers were chosen for the ensuing year: President, C. P. Chesebro, Wabash, St. Louis & Pacific; Vice-President, A. W. Davies, New York, Pennsylvania & Ohio; Secretary, Frank M. Luce, Chicago & Northwestern; Assistant Secretary, W. T. Palm, Chicago, Rock Island & Pacific.

Chesapeake & Delaware Canal.—At the annual meeting in Philadelphia, June 6, the following were chosen: President, Andrew C. Gray; managers, John R. Baker, Gustavus S. Benson, Thomas A. Biddle, Charles Dutilh, James C. Fisher, Henry C. Ford, Joseph E. Gillingham, John F. Gilpin, Charles H. Hutchinson, Mahlon P. Hutchinson, H. Pratt McKean, David Scull, Edwin Swift, Isaiah V. Williamson.

Chesapeake & Ohio.—Mr. Henry W. Fuller has been appointed General Ticket and Passenger Agent, in place of Conway R. Howard, resigned. Mr. Fuller has been for nine years General Southwestern Agent of the Erie, and for two years past General Eastern Agent of the same road.

Chesapeake & Ohio Canal.—At the annual meeting in Annapolis, Md., June 6, the following were chosen: President, A. P. Gorman; directors, James G. Berret, Henry D. Farnandis, Patrick Hamill, John Humbird, Thomas P. Morgan, J. B. H. Smith.

Chester & Lenoir.—This company has re-elected W. Holmes Hardin, President; James Mason, Secretary and Treasurer.

Chicago, Milwaukee & St. Paul.—At the annual meeting in Milwaukee, June 4, the old board was re-elected, as follows: Alexander Mitchell, S. S. Merrill, John Plankinton, Milwaukee, Wis.; Jason C. Easton, Chatfield, Minn.; Selah Chamberlain, Cleveland, O.; John M. Burke, Hugh T. Dickey, David Dows, Peter Geddes, Jeremiah Milbank, James Stillman, Abraham R. Van Nest, Julius Wadsworth, New York. The board re-elected Alexander Mitchell, President; Julius Wadsworth, Vice-President; S. S. Merrill, General Manager; R. D. Jennings, Treasurer; P. M. Myers, Secretary.

Chicago & Northwestern.—At the annual meeting in

Chicago, June 2, the following directors (one-third of the board) were elected: Anson Stager, Chicago; Wm. L. Scott, Erie, Pa.; R. P. Flower, Jay Gould, C. J. Osborn, Frederick W. Vanderbilt, New York. The new directors are Messrs. Stager and Vanderbilt, who succeed D. P. Morgan and Frank Work.

The directors holding over are: Marvin Hughitt, Albert Keep, Chicago; Samuel F. Barger, John M. Burke, Chauncey M. Depew, Sidney Dillon, David Dows, A. G. Dulman, D. O. Mills, Augustus Schell, M. L. Sykes, New York.

The board re-elected Albert Keep President; M. L. Sykes, First Vice-President; Marvin Hughitt, Second Vice-President; M. L. Sykes, Secretary and Treasurer; J. B. Redfield, Assistant Secretary; S. O. Howe, Assistant Secretary and Treasurer. The new Executive Committee consists of Albert Keep, Augustus Schell, A. G. Dulman, W. L. Scott, Samuel F. Barger, Chauncey M. Depew and D. O. Mills.

Chicago & Northwestern Proprietary Lines.—At the annual meetings in Chicago, June 2, the following were chosen: *Winona & St. Peter*—Directors, Albert Keep, James H. Howe, David Dows, A. G. Dulman, M. L. Sykes, Augustus Schell, W. L. Scott, J. B. Redfield; President, Albert Keep; Vice-President, M. L. Sykes; Treasurer, M. L. Sykes; Secretary, S. O. Howe; Assistant Secretary, J. B. Redfield. *Dakota Central*—Directors, Albert Keep, H. Hughitt, M. L. Sykes, Thomas Wilson, M. M. Kirkman, President, Albert Keep; Vice-President, M. L. Sykes; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. *Rock River*—Directors, Albert Keep, M. Hughitt, H. C. Wicker, C. C. Wheeler, E. J. Cuyler, J. B. Redfield, M. M. Kirkman, C. E. Simmons, M. L. Sykes, W. L. Scott, Augustus Schell; President, Albert Keep; Vice-President, Marvin Hughitt; Treasurer, M. M. Kirkman; Secretary, J. B. Redfield. *Elgin & State Line*.—Directors: Albert Keep, James H. Howe, C. C. Wheeler, A. G. Dulman, M. L. Sykes, Charles E. Simmons, Marvin Hughitt, M. M. Kirkman, and J. B. Redfield; President, Albert Keep; Vice-President, M. L. Sykes; Secretary, J. B. Redfield; Treasurer, M. Kirkman. *Menominee River*.—President, Albert Keep; Vice-President, M. L. Sykes; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman.

Chicago, St. Paul, Minneapolis & Omaha.—At the annual meeting in Hudson, Wis., June 4, the following directors (one-third of the board) were chosen: John Comstock, Hudson, Wis.; R. B. Cable, Rock Island, Ill.; H. H. Porter, Chicago; David Dows, H. R. Bishop, New York. The board elected H. H. Porter, President; Philetus Sawyer, Vice-President; C. W. Porter, Secretary; R. P. Flower, Treasurer.

Eastern Shore.—Mr. George Stephens has been appointed General Agent, and will have charge of all business relating to the Freight and Passenger departments.

Elizabeth City & Norfolk.—The following order from Wm. H. Phillips, President, is dated June 1: "Mr. Morris K. King has been appointed General Manager of this road between Elizabeth City, N. C., and Norfolk, Va., and his orders in connection therewith will be duly respected."

On the same date, the following order was issued by Mr. King as General Manager: "In accordance with the foregoing special order, the undersigned hereby assumes direction of the road this day put in operation, with office at Norfolk, Va."

"Mr. J. D. Freeman is appointed Auditor and Local Treasurer; he will have charge of the Accounting Department, and agents and conductors will report to him in all matters pertaining to passenger and freight accounts. Mr. L. C. Howes is appointed Superintendent of Road Department; he will have charge of the maintenance and repairs of road, bridges, buildings and fixtures. Mr. J. S. Whitworth is appointed Master Mechanic, and will have charge of the locomotives and cars of the company, and the machinery employed in repairs of same. Mr. H. C. Hudgins is appointed Agent at Norfolk, Va.; he will have charge of the local passenger and freight business of the road at that place, and will perform such duties as may from time to time be assigned to him relating to the business of the road with connecting lines. Mr. W. A. Harney is appointed Agent at Elizabeth City, N. C.; he will have charge of the freight and passenger business of the road at that place. Their orders in their respective departments and positions will be observed and obeyed."

Georgia.—Major John W. Green has been appointed General Manager for the lessee, and will take charge of the road July 1. Major Green is well known as an engineer, and has been connected with several southern roads, lately with the Vicksburg, Shreveport & Pacific.

Georgia & Pacific.—This company has been organized by the election of the following directors: Joseph Bryan, John B. Gordon, Atlanta, Ga.; E. C. Gordon, C. H. Phinizy, Augusta, Ga.; A. C. Haskell, Columbia, S. C.; A. S. Buford, T. M. R. Talcott, Richmond, Va.; Hugh J. Jewett, H. W. Perkins, New York. The board elected John B. Gordon, President; A. S. Buford, Vice-President.

Lehigh & Hudson River.—The officers of this company as consolidated are: President, Grinnell Burt; Vice-President, George R. Blanchard; Secretary, Alfred Ely; Treasurer, D. B. Halstead. Mr. Blanchard is Vice-President of the New York, Lake Erie & Western.

Marietta & North Georgia.—At the annual meeting in Marietta, June 4, the following directors were chosen: Wm. Phillips, M. Sessions, Marietta, Ga.; B. Blackwell, Cobb County, Ga.; L. N. Osman, Giltner County, Ga.; Robert Bruce, Cherokee County, N. C.; Joseph E. Brown, Atlanta, Ga.; Joseph Kinsey, Cincinnati, O. The board elected Joseph Kinsey President; Wm. Phillips, Vice-President; H. H. Hammet, Secretary; Bolan Glover, Treasurer. Offices at Marietta, Cobb County, Georgia.

Milwaukee & Northern.—This company has elected Guido Pfister President; J. C. Spencer, Vice-President; E. Mariner, Secretary and Treasurer. The road is leased to the Wisconsin Central.

Mobile & South Gulf.—The directors of this new company are: J. W. Burke, Duncan T. Parker, Mobile, Ala.; Josephus Collett, W. R. McKee, D. W. Minshall, Terre Haute, Ind.; Morris M. Defrees, J. H. Woodard, Indianapolis, Ind. The board has elected J. H. Woodard President; A. G. Cox, Auditor; Morris M. Defrees, Superintendent and Engineer.

New England & Canadian Pool.—Mr. George W. Hibbard has been appointed Commissioner and Adjuster of this pool on business between New England and Canadian points, which includes the Central Vermont lines, the Southeastern of Canada, the Connecticut & Passumpsic Rivers and the Boston, Concord & Montreal. Mr. Hibbard has been Chief Clerk of the Passenger Department of the Central Vermont and lately of the Grand Trunk.

New York Central & Hudson River.—The office of Mr. George H. Burrows, Superintendent of the Western Division, has been removed from Rochester to Buffalo, N. Y., and the office of Gen. Zenas C. Priest, Superintendent of the Eastern Division, from Utica to Albany, N. Y.

New York Tunnel Railroad Co.—This company has been organized with the following officers: President, H. Walter Webb; Vice President, H. E. Stetson; directors, E. M. Brown, S. J. Gorman, H. C. Hepburn, C. D. Ingersoll, H. R. McElligott, J. D. Mower, Ogden P. Pell, Henry F. Pultze, E. Aymar Sands, C. D. Sidell, Henry L. Sprague; Secretary, E. M. Brown; Treasurer, C. D. Sidell.

Northeastern, of Georgia.—At a meeting held in Athens, Ga., June 2, A. S. Buford, A. C. Haskell, T. M. Logan and T. M. R. Talcott were chosen directors in place of R. L. Bloomfield, Howell Cobb, W. T. Thomas and G. H. Yancey, resigned. The new directors are all connected with the Richmond & Danville Company, which now controls the road. The board elected G. J. Foreacre President, in place of J. W. Nicholson, resigned.

Northern (New Hampshire).—The new board has re-elected Henry C. Sherburne President; Wm. Foster, Clerk; George A. Kettell, Treasurer.

Northern Pacific.—Mr. J. A. Barker is now General Auditor, with office at No. 23 Fifth avenue, New York. Mr. George Sanborn is Local Treasurer, and Mr. M. P. Martin Auditor for the Eastern divisions, with offices at St. Paul, Minn. They will have charge of all agencies and accounts coming to the St. Paul office.

Paducah & Elizabethtown.—Mr. J. W. Pelot, Car Accountant, has been appointed Train-Master also, in place of W. C. Southerland, resigned.

Pennsylvania.—The following circular has been issued by General Manager Frank Thomson:

"The organization as revised by the board of directors, to take effect June 1, 1881, provides that the General Manager shall be assisted by a Superintendent of Transportation, and that the present offices of Superintendent of Transportation for the Pennsylvania Railroad Division, and the United Railroads of New Jersey Division, shall be abolished. The duties assigned to the Superintendent of Transportation are as follows:

"The Superintendent of Transportation shall have charge of the distribution of the car equipment to the points where most required. It shall be his duty to see that the cars are moved promptly, so that they may be made to perform the fullest service possible. He shall attend to the numbering and weighing of all cars and keep a record of their movements. He shall also procure the prescribed releases from the owners of individual cars. He shall keep a record of all the cars belonging to this company, and an account of the amounts that may become due to this company for the use of their cars on foreign roads, and of the amounts due to foreign roads for the use of their cars on the roads of this company, and shall attend to the settlement of such accounts, and shall perform such other duties as shall be assigned to him by the General Manager.

"Mr. John Kelly has been appointed Superintendent of Transportation Pennsylvania Railroad, Northern Central Railway, Baltimore & Potomac Railroad, Alexandria & Fredericksburg Railway and West Jersey Railroad, with office at Philadelphia, and on and after June 1 all communications and reports in connection with the record and movement of cars, car mileage, etc., on the several lines above named should be addressed to him, at 253 South Fourth street, Philadelphia."

Mr. Wm. J. Latta has been appointed Superintendent of the Altoona Division, a new division, which includes the Altoona yard and shops and the Holidaysburg, Morrison's Cove, Newry, Williamsburg and Springfield branches.

Mr. James Reed has been appointed Principal Assistant Engineer of Maintenance of Way, Pennsylvania Railroad Division, in place of Robert E. Pettit, promoted. Mr. Robert L. Holliday succeeds Mr. Reed as Assistant Engineer of Maintenance of Way, Pittsburgh Division. Mr. A. E. Reed is appointed Supervisor of Division No. 4, Pittsburgh Division, in place of Mr. Holliday.

Pittsburg, Cincinnati & St. Louis.—Mr. Ralph Peters is appointed Superintendent of the Little Miami Division, in place of Mr. C. C. Waite, who has gone to the New York, Lake Erie & Western.

Mr. C. C. F. Bent is appointed Superintendent of the Second and Third Columbus, Chicago & Indiana Central divisions, West, in place of Mr. Ralph Peters, transferred to the Little Miami Division.

Portland, Saco & Portsmouth.—At the annual meeting in Kittery, Me., June 6, the following directors were chosen: Wm. B. Bacon, George E. B. Jackson, George P. King, Samuel C. Lawrence, E. B. Phillips, Alfred P. Rockwell, Stephen J. Young. The road is leased to the Eastern Company.

Queen Anne's & Kent.—At the annual meeting in Centreville, Md., June 2, the following officers were chosen: President, B. T. Biggs, Middletown, Del.; directors, T. M. Perot, Centreville, Md.; Jacob Tome, Port Deposit, Md.; S. M. Felton, Isaac Hinkley, Strickland Kneass, Frank Thompson, Philadelphia; Treasurer, Robert Craven, Philadelphia.

Richmond, Fredericksburg & Potomac.—At a meeting held in Richmond, Va., May 29, the stockholders elected Joseph P. Brinton, of Philadelphia, President, in place of Judge Robert Ould, resigned.

St. Joe & Des Loge.—Mr. J. Naramore is Superintendent, with office at Bonne Terre, St. Francois County, Mo.

St. Louis & San Francisco.—Mr. D. H. Nichols has been appointed Master of Transportation, with office in Springfield, Mo. Division superintendents and Superintendent of Telegraph will make their reports to, and receive their orders from, him. Mr. W. A. Thoms has been appointed Superintendent of the Missouri & Arkansas Division, with headquarters at Springfield, Mo., in place of Mr. Nichols. Mr. J. R. Wentworth is appointed Superintendent of the Kansas Division, in place of Mr. Thoms.

St. Paul & Sioux City.—At the annual meeting in St. Paul, June 14, the following directors were chosen: J. Q. Adams, C. A. Bigelow, E. F. Drake, H. Merriam, A. H. Wilder, St. Paul, Minn.; August Kountze, Omaha, Neb.; Philetus Sawyer, Oshkosh, Wis.; R. R. Cable, Rock Island, Ill.; H. H. Porter, Chicago; R. H. Bishop, Benjamin Brewster, David Dows, J. M. Fisk, R. P. Flower, George I. Seney, New York. The board elected H. H. Porter, President; E. F. Drake, Vice-President; G. A. Hamilton, Secretary; R. F. Flower, Treasurer; R. Edgerton, Assistant Treasurer.

Texas Western.—At a meeting of the stockholders of this reorganized company in Houston, Tex., June 3, the following directors were chosen: John Bailey, W. D. Cleveland, A. M. Gentry, Gen. U. S. Grant, Frederick D. Grant, S. K. McIlhenny, H. Victor Newcomb, Josiah C. Reiff, J. G. Tracy. The board elected Gen. U. S. Grant President; J. G. Tracy, Secretary; Gen. U. S. Grant, H. Victor Newcomb, Josiah C. Reiff, Executive Committee.

Toledo & Ann Arbor.—At the annual meeting last week the following directors were chosen: J. M. Ashley, J. M. Ashley, Jr., Ann Arbor, Mich.; F. C. Chapin, C. S. Luce, Toledo, O.; Parker Handy, J. W. Nash, New York. The

board elected J. M. Ashley, President; A. L. Holman, Secretary; H. R. McEligath, Treasurer.

Tuckerton.—At the annual meeting in Manchester, N. J., June 8, the following directors were chosen: Richard Ashhurst, Samuel Ashhurst, H. A. Drake, Charles T. Parry, A. R. Pharo, W. W. Pharo, T. C. Price, John W. Russell, Rutherford Stuyvesant. The board elected A. R. Pharo President; Rutherford Stuyvesant, Vice-President; T. C. Price, Secretary; Richard Ashhurst, Treasurer.

Vermont & Massachusetts.—At the annual meeting in Boston, June 2, the following were chosen: President, Daniel S. Richardson; directors, Edward L. Davis, James A. Dupee, George F. Fay, Francis Goodhue, Wm. H. Hill, Thornton K. Ware; Clerk, B. D. Locke; Treasurer, F. N. Poor. The road is leased to the Fitchburg Company.

Water Gap & Schuylkill.—Mr. Henry Whelen, of Philadelphia, is President of this new company.

Wisconsin & Minnesota.—This company has elected the following officers: C. L. Colby, President and Treasurer; E. H. Abbott, Vice-President and Secretary; F. N. Finney, General Manager. The road is controlled by the Wisconsin Central.

Worcester.—At the annual meeting in Snow Hill, Md., June 1, the following officers were chosen: President, Dr. George W. Bishop; directors, N. L. McCready, John Bodine, Henderson Moore, Edward Bell, Thomas Baumgardner, C. C. Stockley, G. W. Covington, E. K. Wilson, G. C. Townsend, G. W. Purnell, James R. Purnell, Thomas D. Purnell; Treasurer, D. Houston; Superintendent, John L. Mapes.

PERSONAL.

—Mr. H. Hitchcock, long Superintendent of the Galesburg Division of the Chicago, Burlington & Quincy road, has resigned his position.

—Mr. Alfred P. Boller, Chief Engineer of the Manhattan Railway, has been made Chief Engineer of the Albany & Greenbush bridge, now in course of construction.

—Mr. J. W. Paramore has resigned his position with the St. Louis Cotton Compress Company, in order to devote his whole time to his duties as President of the Texas & St. Louis Railroad Company.

—Mr. C. F. Tyler, Assistant Superintendent of the Ohio Division, Indiana, Bloomington & Western, was married last week to Miss Daisy Reed, of Columbus, O., and started on a wedding trip to Boston.

—Mr. Conway R. Howard, for several years past General Ticket and Passenger Agent of the Chesapeake & Ohio railroad, has resigned his position. He is widely known as an active and successful officer. Before occupying this position he was an engineer engaged in the construction of the road.

—Gen. Bird W. Spencer, Treasurer of the New York, Lake Erie & Western Company, has been appointed by the Governor of New Jersey Brigadier General and Inspector of Rifle Practice on the State Military Staff. Gen. Spencer lives in Passaic, N. J., and has taken much interest in the National Guard of the state, of which he has been an officer for some time.

—Mr. Isaac Morehead, of Erie, Pa., died June 4 at Eaton Rapids, Mich., where he had gone for his health. In early life he was employed in the surveys of the old Erie & State Line road, but after its completion he gave up engineering and became a conductor on the road (now part of the Lake Shore & Michigan Southern). He continued a conductor nearly 30 years, till 1879, when he was appointed Postmaster at Erie.

—Col. Thomas A. Scott, it will be remembered, gave away \$250,000 to various educational and charitable institutions shortly before his death, and, having thus remembered the public objects he desired to assist, his will contains none but personal bequests. With the exception of a few legacies to his surviving brother and sisters and their children, his estate is left to his wife and children of both marriages. His wife has been appointed guardian of the minor children and their estates. His wife, his son James P. and his daughter, Mrs. Bickley, are the executors. The will contains a provision against the filing of an inventory or accounts of the estate in the courts, and the exact magnitude of Col. Scott's fortune will, therefore, be known only to those directly interested. Its amount has been very variously estimated.

—The Wilmington (Del.) Gazette, of June 3, says: "Mr. James Elliott, the well-known ticket agent of the Pittsburgh, Wilmington & Boston Railroad Company, in this city, has tendered his resignation, which took effect yesterday. Mr. Elliott entered the service of the Company in November, 1835, as Superintendent of Locomotives. He ran the first engine over the road, and also ran the first President's message (one of Andrew Jackson's) ever sent over this line. On this trip the run from Havre de Grace to Wilmington, 34 miles, was made in 57 minutes, which at that time was considered a great feat. He was appointed ticket agent for Wilmington in March, 1854, and continued in that position until to-day, making his connection with the company extend over an uninterrupted period of 46 years. Mr. Elliott is 75 years of age, and resigns on account of failing health, though his physical condition is still pretty fair."

—Mr. S. R. Callaway, late General Superintendent of the Detroit & Bay City, has issued the following circular to the employees of that road on resigning his charge: "It is difficult for me to find befitting words in which to express to you my gratitude for your generous gift, and the sentiments which prompted it. To win the good will and esteem of our associates in life is one of the highest achievements open to human ambition, and to thus be assured that I hold such a place in the hearts of my late co-laborers, is one of the greatest pleasures I am likely ever to enjoy. For any success which may have attended my administration of the affairs of the Detroit & Bay City Railroad, I am indebted to the never-failing zeal and fidelity of its employees. Regretting that circumstances render it impossible for me to thank each one of you in person, I trust I may continue to occupy a place in your affection and esteem, as you most assuredly will in mine."

TRAFFIC AND EARNINGS.

Chicago and Milwaukee Receipts.

Receipts at Chicago and Milwaukee during the first week of June for four years have been:

	1878.	1879.	1880.	1881.
Chicago.				
Grain, bu.	2,850,810	4,074,508	3,878,928	4,118,801
Flour, bbls.	44,830	74,470	47,396	74,980
Hogs, No.	125,978	127,996	103,594	133,533
Milwaukee.				
Grain bu.	291,773	697,247	570,726	681,014
Flour, bbls.	38,303	47,593	53,674	90,795
Hogs, No.	4,620	4,300	4,063	10,224

It appears thus that the grain receipts at Chicago, which in May were the smallest for four years, in the first week of

June are the largest for four years, and the Milwaukee grain receipts, which in May were the smallest for four years and not half as large as in 1878, for this week are larger than in any corresponding week, except in 1879, and with the flour included larger than that year and 33 1/2 per cent more than last year.

Railroad Earnings.

Earnings for various periods are reported as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Five months ending May 31:				
Chi. & Alton.....	\$2,540,887	\$2,806,830	D.	\$255,943 8.1
Chi. & Eastern Ill.	642,143	439,499	I.	202,644 46.1
Chi. & Gr. Trunk.....	560,480	462,325	I.	98,155 21.3
Chi. Mil. & St. P.	5,389,000	4,409,507	I.	979,493 22.3
Denver & R. G.	1,971,629	777,923	I.	1,193,706 153.2
Hannibal & St. Jo.	817,863	957,158	D.	139,295 14.3
Flint & Pere Mar.	744,078	621,739	I.	122,339 19.9
Houston & Tex.				
Cent.....	1,506,888	1,263,366	I.	243,522 19.3
Ind. Bloom. & West.	482,080	462,753	I.	19,326 4.2
Int. & Gr. No.	972,343	618,512	I.	353,831 57.2
Louisville & Nash.	4,235,008	3,058,586	I.	1,176,422 38.0
Mobile & Ohio.....	891,831	84,979	I.	806,852 9.5
Northern Pacific.	1,062,605	828,734	I.	233,871 28.2
St. L., Iron Mt. & So.	2,862,244	2,255,032	I.	607,212 26.9
St. L. & San Fran.	1,200,765	942,843	I.	257,922 27.4
St. P., Minn. & Man.	1,542,959	1,104,594	I.	438,365 39.7
Texas & Pacific.....	1,386,184	995,280	I.	390,904 39.3

Four months ending April 30:

	1881.	1880.	Inc. or Dec.	P. c.
Southern Pacific	\$298,000	\$223,749	I.	\$74,251 33.2
No. Div.....	1,209,300	1,142,000	I.	67,300 5.9
Month of April:				
Southern Pacific	\$77,000	\$53,928	I.	\$23,072 42.7
No. Div.....	410,000	433,000	D.	23,000 5.3

	1881.	1880.	Inc. or Dec.	P. c.
Month of April:				
Chicago & Alton.....	\$528,800	\$616,129	D.	\$87,329 14.2
Chi. & Eastern Ill.	140,551	101,800	I.	38,751 38.4
Chi. Mil. & St. P.	1,538,000	1,134,774	I.	403,226 35.5
Denver & R. G.	514,767	191,065	I.	323,702 170.4
Flint & Pere Mar.	160,707	115,670	I.	44,737 38.5
Hannibal & St. Jo.	177,002	191,317	D.	14,315 7.5
Hous. & Tex. Cen.	226,401	185,982	I.	40,419 21.7
Ind. Bloom. & W.	102,631	85,734	I.	16,897 19.9
Int. & Gr. No.	170,318	92,842	I.	77,476 83.3
Louisville & Nash.	820,425	632,600	I.	187,825 29.6
Mobile & Ohio.....	145,416	129,249	I.	16,167 12.5
Northern Pacific.	299,880	217,613	I.	82,267 37.7
St. L., Iron Mt. & So.	480,300	349,053	I.	131,247 37.5
St. L. & San Fran.	282,748	175,532	I.	107,216 60.9
St. P., Minn. & Man.	382,642	281,899	I.	100,743 35.7
Texas & Pacific.....	267,443	141,083	I.	126,360 89.6

	1881.	1880.	Inc. or Dec.	P. c.
Third week in May:				
Min. & St. Louis.	\$24,995	\$12,565	I.	\$12,430 98.8
Wabash, St. L. & P.	305,099	277,471	I.	28,228 10.2

	1881.	1880.	Inc. or Dec.	P. c.
Week ending May 27:				
Great Western.....	\$103,100	\$96,745	I.	\$6,354 6.6

	1881.	1880.	Inc. or Dec.	P. c.
Week ending May 28:				
Chi. & Gr. Trunk.....	\$31,127	\$39,132	D.	\$8,005 25.5

Grain Movement.

For the week ending May 28 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

	1881.	1880.	Inc. or Dec.	P. c.
Northwestern receipts.	5,324,037	5,005,175	I.	318,862 6.4
Atlantic receipts.	2,641,087	2,769,901	D.	128,814 4.8
1874.....	4,936,853	4,210,084	I.	726,769 17.3
1875.....	2,835,626	2,114,639	I.	720,987 34.1
1876.....	6,556,985	5,045,362	I.	1,511,623 29.9
1877.....	6,166,629	5,087,244	I.	1,079,385 17.5
1878.....	8,806,172	6,190,472	I.	2,615,700 42.3
1879.....	5,779,754	6,047,136	D.	267,382 4.6

The receipts of the Northwestern markets this year were thus 3,000,000, or nearly 35 per cent., less than in the corresponding week of last year; they were, however, a million bushels more than the week before, and much the largest of this year. The shipments of these markets were but little less than last year and larger than in any earlier year, for the corresponding week, but a little less than the week before this year. The Mississippi River shipments during the week were 532,388 bushels, or 8.8 per cent. of the whole.

The receipts of the Atlantic ports were smaller than in the corresponding week for three years previous, and a little smaller than the week before, but with that exception much the largest of the year.

Of the Northwestern receipts Chicago had 47.8 per cent., St. Louis 21.9, Toledo 10.6, Peoria 9.6, Milwaukee 6.8, Detroit 2.1, and Cleveland 1.2 per cent. The most notable feature in the receipts is the very large amount arriving at Chicago, being 45 per cent. more than in the week before, when they were much larger than in any previous week this year. It is probable that the spring and summer shipments of the Northwestern farmers, hitherto delayed by the late spring, have now fairly begun, and we shall see whether the lake ports maintain their old supremacy. St. Louis receipts this week were 15 per cent. more than the week before, and in amounts its gain was 162,500 bushels, against \$51,000 at Chicago. The Peoria receipts are the smallest for five weeks, yet not very small.

Of the Atlantic receipts New York had 47.6 per cent., Philadelphia 17.5, Baltimore 14.2, New Orleans 7.7, Montreal 7.4, Boston 5.5, and Portland 0.1 per cent. Compared with the previous week there was a great decrease at New York, but in that week there were very large arrivals of boats frozen in not far west of Troy last winter. This week's receipts were nearly twice as large as in any other week this year. Another notable change is a great increase at Philadelphia (75 per cent.), whose receipts have not been so large before since last October. Baltimore also shows a great increase over the receipts of late—90 per cent. more than the week before, and the largest amount since March. The New Orleans receipts are the largest for four weeks, but have been largely exceeded in some weeks this year.

Exports from Atlantic ports for five successive weeks have been:

	June 1.	May 25.	May 18.	May 11.	May 4.
Flour, bbls.	73,573	91,901	101,310	73,411	104,271
Grain, bush.	5,949,131	3,280,568	3,114,802	3,371,309	2,397,958

The very large increase in grain shipments the last week is noticeable, and yet ocean rates continue very low.

For the eight weeks ending June 1 the exports of these ports this year and last have been:

	1881.	1880.	Inc. or Dec.	P. c.
Flour bbls.	790,650	682,454	I.	108,196 15.9
Grain bush.	27,859,168	34,090,736	D.	6,231,568 18.3
Total, bush.	31,417,093	36,936,779	D.	5,519,686 15.0

The increase in flour exports is not so great as it was, and we are approaching the time when the great increase in flour production in this country began last year.

Receipts and shipments at Chicago and Milwaukee for the week ending June 3 were:

	1881.	1880.	1881.	1880.
Chicago.....	4,282,755	3,471,808	2,699,512	2,055,962
Milwaukee.....	639,290	640,044	263,330	934,337

This is the first week since April that the receipts at Chicago have been as large as in the corresponding week of last year.

For the same week receipts and shipments at Buffalo were:

	1881.	1880.	1881.	1880.
By water.....	2,629,000	2,999,200	1,579,840	1,916,769
By rail.....	471,000	673,100	1,267,500	1,322,000
Total.....	3,100,000	3,672,300	2,847,340	3,238,769
P. c. by rail.....	15.2	18.3	44.5	40.8

The proportion received by rail is smaller, but the proportion shipped by rail larger than last year, the canal shipments being 336,922 bushels, or 17.6 per cent., less.

For the same week ending June 3, receipts at the four leading Eastern ports were:

	New York.	Boston.	Philadelphia.	Baltimore.
1881.....	2,595,347	551,357	1,248,600	1,290,030
1880.....	3,275,078	288,267	980,200	1,011,554

At New York the receipts were thus 679,731 bushels, or 20.7 per cent. less than last year; at the other three ports they were 548,964 bushels, or 24.1 per cent., more.

Lake Superior Iron Ore.

Shipments of iron ore from the Lake Superior region from the opening of navigation to June 1, are reported by the Marquette Mining Journal as follows:

	1881.	1880.	Dec.	P. c.
From L'Anse.....	2,793	5,010	2,217	44.3
" Marquette.....	45,063	77,495	32,432	42.1
" Escanaba.....	159,951	185,917	25,966	14.0
Total.....	207,807	268,422	60,615	22.6

The opening of navigation was later this year than last. Of the Escanaba shipments 73,503 tons were from the Marquette District, and 86,448 tons from the Menominee District.

Shipments of pig-iron were 639 tons.

The total ore, pig-iron and quartz, including deliveries to local points, carried over the Marquette, Houghton & Ontonagon road was 56,825 tons.

Coal Movement.

Anthracite tonnages for the five months ending May 28 are reported as follows, the tonnage in each case being only that originating on the line to which it is credited:

	1881.	1880.	Inc. or Dec.	P. c.
Phila. & Reading.....	2,291,185	2,145,402	I.	145,783 6.8
Northern Central, Shamokin Div., and Summit Br. R. R.	391,627	275,284	I.	116,343 42.3
Sunbury, Hazleton & Wilkesbarre.....	2,560	5,831	D.	3,271 50.1
Pennsylvania Canal.....	102,368	85,484	I.	16,884 19.8
Central of N. J., Lehigh Div.	1,646,805	1,350,238	I.	296,567 22.0
Lehigh Valley.....	2,014,274	1,549,005	I.	465,269 30.0
Pennsylvania & N. Y.	27,905	10,023	I.	17,882 17.8
Del., Lacka. & Western.	1,538,553	1,320,937	I.	217,616 16.5
Del. & Hudson Canal Co.	3,312,463	1,292,338	I.	2,020,125 155.2
Pennsylvania Coal Co.	432,965	367,166	I.	65,799 17.8
State Line & Sullivan.....	24,468	16,841	I.	7,627 45.4
Total anthracite.....	9,784,879	8,328,540	I.	1,456,339 17.5

The tonnage of anthracite for the corresponding period for six years has been:

	1881.	1880.	1879.	1878.	1877.	1876.
Anthracite.....	9,784,879	8,328,540	7,696,469	7,696,469	5,888,673	5,325,681

The following notice has been sent out: "The anthracite coal interests have agreed to the stoppage of coal mining the following days in June and July: June 9, 10, 11, 23, 24 and 25, and July 4, 5 and 6. To fully carry out the spirit of the agreement it is essential that the mining, hoisting, preparation and loading of coal during those days be entirely discontinued, and it is earnestly hoped that the above agreement for suspension will be carried out by every one in good faith."

This is substantially the plan followed to restrict production for several months past, and is opposed to the plan of stoppage offered by the Reading.

The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the five months ending May 28, was:

	1881.	1880.	Inc. or Dec.	P. c.
Coal Port for shipment.....	14,375	9,064	I.	4,711 48.6
South Amboy for shipment.....	259,800	156,323	I.	103,477 66.4
Local points on N. J. lines.....	288,134	188,993	I.	99,141 52.5
Company's use on N. J. lines.....	41,848	41,139	I.	709 1.7
Total.....	604,247	386,119	I.	218,128 56.6</

ble, and is especially marked in the gas coal of the Westmoreland Region.

The coal tonnage of the New York canals from the opening to May 21 was as follows:

	1881.	1880.	Decrease.	P. c.
Anthracite.....	68,397	134,856	66,459	49.0
Bituminous.....	12,446	19,061	6,615	34.8
Total.....	81,143	153,917	72,774	47.2

The decrease is less than might have been expected, as the canals opened nearly a month earlier in 1880 than this year.

Coke tonnages reported for the five months are as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Snow Shoe.....	3,202	215	I. 2,987
Allegheny Region, Pa. R. R.	41,440	27,432	I. 14,008	51.8
Penn. & Westmoreland R. R.	81,505	50,134	I. 31,371	37.9
West Penn. R. R.	48,550	41,061	I. 7,489	18.2
Southwest Penn. R. R.	603,502	430,063	I. 173,439	40.4
Pittsburgh Region, Pa. R. R.	266,019	224,929	I. 41,090	18.3
Total coke.....	1,044,027	783,724	I. 260,303	33.2

The coke business continues to increase very largely, with no apparent checks. From the Connellsville Region, it is reported that shipments are limited only the supply of cars.

The coal tonnage of the Pennsylvania Railroad for the five months were as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Anthracite.....	532,549	418,072	I. 114,477	27.4
Semi-bituminous.....	1,136,486	730,286	I. 406,200	55.7
Bituminous.....	862,280	1,026,038	D. 163,758	15.9
Coke.....	1,044,027	756,086	I. 287,941	38.1
Total.....	3,575,342	2,934,482	I. 640,860	21.6

The tonnage of all kinds in May was 662,360 tons, against 728,351 in April, 917,318 in March, 620,155 in February, and 652,158 in January.

Chicago Shipments Eastward.

For the week ending June 4 the shipments of through freight eastward from Chicago by the several lines in the pool were, in tons:

	Tons.	P. c. of total.	Pool p. c.
Chicago & Grand Trunk.....	3,904	19.2	10.0
Michigan Central.....	6,723	21.6	26.0
Lake Shore.....	6,609	21.2	23.0
Fort Wayne.....	7,052	22.6	23.0
Pan-handle.....	2,904	9.3	10.0
Baltimore & Ohio.....	1,904	6.1	8.0
Total.....	31,186	100.0	100.0

Of the total 6,186 tons were flour and 18,505 grain, these two staples making nearly four-fifths of the whole.

For five successive weeks the shipments this year and last have been:

Week ending	1881.	1880.
May 7.....	22,351	27,000
" 14.....	10,526	24,485
" 21.....	42,523	39,067
" 28.....	38,748	34,218
June 4.....	31,185	32,403

Five weeks.....154,334 147,173

For the first week since the switchmen's strike, the shipments are less (very little less, however,) than in the corresponding week of last year. For the five weeks the shipments were nearly 5 per cent. greater this year.

Delaware Fruit Traffic.

Shipments of strawberries over the Delaware Division, Philadelphia, Wilmington & Baltimore Railroad, up to June 4 were 452 car-loads, and had reached over 80 cars per day. The season is nearly two weeks later than last year.

RAILROAD LAW.

Land Damages—Consequential Damages.

In the case of the Lake Shore & Michigan Southern and the Chicago, Rock Island & Pacific Railroad vs. the Chicago & Western Indiana Railroad Company, on appeal from the Circuit Court of Cook County, an opinion was filed in the office of the Supreme Court Clerk at Ottawa, Ill., May 14.

Justice Sheldon delivered the opinion and reviewed the case at length. He said that on March 15, 1880, the Chicago & Western Indiana Railroad filed its petition in the County Court of Cook County to condemn a strip of land 50 feet in width, crossing the tracks of the Lake Shore and Rock Island railroads. It was claimed that this 50-foot strip crossing Blocks 34 and 35 was for a right of way. The defendants (in the Court below), the Rock Island and Lake Shore roads, filed their answer denying the necessity of the appropriation and the power of the petitioner to make it, and also filed a cross-petition for the purpose of obtaining damages for property injured but not taken under such condemnation. The verdict of the jury found the compensation for the property taken to be \$19,000, and the damages for property injured but not taken to be \$13,500. On this verdict judgment was taken and the defendants appealed.

The Supreme Court held that the objections made to the rulings of the Court below, complained of as erroneous, were too numerous to notice in detail, and the Court, therefore, proceeded to consider them generally, and express its views on the theory on which the case was tried. The property over which the petitioner (the Western Indiana Railroad) proposed to lay its track was bounded east by Clark street, west by the Chicago River, and south by Sixteenth street. The strip proposed to be taken ran diagonally from Sixteenth to Clark streets, crossing the St. Charles Air Line Railroad and the tracks of the defendant roads. The defendants owned a right of way from Van Buren street south to Englewood and their freight depots and warehouses were north of the blocks named, while nearly all their lines extended southeast and west from said blocks. Their main lines crossed said blocks and could not be constructed elsewhere and they used several Y tracks on said blocks for transfer purposes. Their main tracks cross and the Y tracks intercept the St. Charles road; the main channel of transfer for all roads in Chicago and the only one available to defendants. These blocks also connect defendant's lines with the Chicago River, and thus with the navigation of the great lakes.

It appears that these blocks, because of their proximity to the St. Charles road, were of no special value for transfer purposes, and that the effect of the construction and operation of four main tracks on the 50-foot strip proposed to be taken would be to greatly impair the value of the property. Numerous offers of proof of this were made and rejected in the Court below. The jury were instructed that the right of a corporation to use property to effectuate the objects of its creation constituted a franchise, that the defendants could not recover on this action for damages to or interference with such franchise, and that the verdict of the jury must be limited to actual and direct damages to the market value of the land. The Court below refused to instruct the jury to consider evidence as to the right of way and railroad property of the defendant companies.

The Supreme Court deemed this ruling of the Court below

too confined in its scope and erroneous, and quoted the Constitution of 1870, Art. II, Sec. 13, and Art. XI, Sec. 14. The Court also referred to its own decision in the case of the Chicago & Alton Railroad vs. the Springfield & Northern Railroad, 67th Illinois, p. 147, where it was held that the "just compensation" spoken of in the Bill of Rights included consequential damages. The Supreme Court also held, in Jones vs. the Chicago & Iowa Railroad Company, in regard to damages to the landowner, that the compensation allowed should cover actual damage and inconvenience actually produced, but that nothing should be allowed for imaginary or speculative damages. In the case of the Keithsburg & Eastern Railroad Company vs. Henry, 79th Illinois, p. 392, the Court held that the jury must consider damage resulting from the severance of a farm into two portions by a railroad running through it. The Court quoted also Mix vs. the Lafayette, Bloomington & Mississippi Railroad Company, 67th Illinois, p. 321. And on these decisions the Supreme Court held that there was error in the ruling of the Court below.

The Supreme Court held that the limited use of the land vested in the defendants was property as much as if the use were absolute. This use was vested in the defendants, and had the petitioner entered upon the right of way and obstructed it, that would have been trespass. The entrance of the petitioner by virtue of these proceedings impaired the value of the property, and called for just compensation. The record showed that all evidence as to damage caused beyond the boundaries of Blocks 34 and 35 was excluded. But the Supreme Court held that it was competent to show damage accruing to any part of the right of way or railroad property as an entirety, as much as in the case of a farm where a railroad interferes with access between the different portions.

The Supreme Court further held that the value of the land should have been computed on the basis of its usefulness for making railroad transfers. The limitation of the recovery of damages to the actual injury inflicted was therefore too restricted, and the refused instruction asked by the defendant should have been given.

The Court held further that the rejected testimony was material, and should have been admitted. The necessity of the appropriation, and the power of the petitioner to make it, had been determined in the case of the Lake Shore & Michigan Southern Railroad Company vs. the Chicago & Western Indiana Railroad Company—unreported. The order of the County Court authorized the appellee to enter on the premises pending the appeal was made after the entry of final judgment, from which alone this appeal was taken, and after the appeal was perfected, and the appeal brought up for review only such matters as preceded the entry and perfection of the appeal. The judgment of the lower Court was reversed, and the case remanded. Justice Scott dissented.—Chicago Tribune.

THE SCRAP HEAP.

Locomotive Building.

The Rhode Island Locomotive Works, at Providence, R. I., recently delivered to the Cheshire Railroad two ten-wheel freight engines (six drivers and four-wheel truck), with 19 by 24 in. cylinders. These engines have two Mack injectors and no pumps, and are supplied with the Ashton blow-back safety-valve.

The parties who have leased the old Camden & Amboy shops at Bordentown, N. J., have organized the Bordentown Locomotive Works Co., with \$400,000 capital. It is said that they have already secured orders for a number of locomotives.

The people of Ottawa, Ill., desire to call attention to the advantages offered by their city as a location for new locomotive works. They are ready to give 20 acres or more of land as a site, and offer other inducements.

Car Notes.

The Jackson & Sharp Co., at Wilmington, Del., have put in a new Corliss engine of 250 horse-power, to run their machinery.

A company has been organized at Toledo, O., with \$200,000 capital, to make the Wilmington Patent Car-Wheel. A shop has been leased, and work will be begun at once.

The old Redston Foundry, at Uniontown, Pa., has lately done considerable business in car-wheels and car castings.

The Southern Car Works Co. has been organized at Knoxville, Tenn., with a capital of \$100,000. The directors are A. L. Maxwell, W. R. Tuttle, of Knoxville; George W. Colwell, Robert L. Lott, Reuben L. Roberts, of Michigan. Shops are to be built at once.

The Boston & Maine shops at Lawrence, Mass., are building four passenger cars for the road, and have lately completed three new baggage cars.

The Laconia Car Co., at Laconia, N. H., is building five passenger cars for the Boston & Maine road.

The Barney & Smith Manufacturing Co., of this city, recently closed the following large contracts: Central Pacific Railroad, for Southern Pacific, 600 freight cars; Cleveland, Columbus, Cincinnati & Indianapolis, 400; Utah Southern, 100, and have also completed 600 for the Cincinnati, Indianapolis, St. Louis & Chicago, 300 for the Central Pacific and a number of other roads. The passenger department is very busy on sleepers for Central Pacific, Northern Pacific, Wagner, Baltimore & Ohio and Woodruff coaches for a dozen different roads. The firm now employs nearly 1,000 men.—Dayton (O.) Herald.

Bridge Notes.

The Atlanta Bridge Works, of Wilkins, Post & Co., at Atlanta, Ga., have been awarded the contract for building four spans of combination Pratt truss bridge, 140 ft. each, over Uphaus Creek on the Western Railroad of Alabama.

The Morse Bridge Works, in Youngstown, O., are full of work, with a number of orders to fill.

Iron and Manufacturing Notes.

Morgan, Williams & Co., at Alliance, O., are finishing for Oliver Bros. & Phillips, Pittsburgh, a shear that weighs 68 tons and cuts 100 in. at one stroke. They have an order for another of the same size for J. H. Schenberger & Co., Pittsburgh. They are preparing to enlarge their works.

Alice Furnace, at Birmingham, Ala., is running on mill iron of a high grade.

The Bolton Steel Co., at Canton, O., is running its works full double turn.

The Aikanna Iron Works, near Steubenville, O., were recently sold to Sharp & Daniels, of Youngstown, O., who will put the works in operation as soon as possible.

The Union Pacific rolling mill at Laramie, Wyo. Ter., is very busy on iron rails, splice-bars and track bolts.

Rising Fawn Furnace, in Dade County, Ga., is turning out 65 tons of pig iron a day.

The Lucy Furnaces have passed into the hands of a new company, styled the Lucy Furnace Co., Limited, and composed of Wilson, Walker & Co. and Carnegie Brothers & Co. The capital of the new company, of which Mr. Wilson is chairman and Mr. Walker, Secretary and Treasurer, is \$1,000,000.—American Manufacturer.

The Warner Iron Co. is building a new blast furnace in Hickman County, Tenn. It will burn charcoal and use red and brown hematite native ores.

The Rail Market.

Steel rails are lower, and quotations are \$56 to \$60 per ton at mill. It is almost impossible to place any order for delivery before September. Some sales of English steel rails are reported at \$61.50 to \$63 at Southern ports.

For iron rails there is still much inquiry and the mills are all full of work. Prices range from \$46.50 to \$50 per ton at mill according to section.

For old iron rails the market is dull. Sales are reported at \$26 to \$28.50 per ton in Philadelphia.

A Car-load of Pigeons.

A car-load of pigeons was to have started from Topeka, Kansas, Sunday night, for Brooklyn, for the use of the sportsmen who assemble at the twenty-third annual convention of the New York State Association for the Protection of Fish and Game, beginning June 20, at Coney Island, and lasting until June 25. It will require 20,000 pigeons to meet the demands of the protectors of game.—Buffalo Express.

Dead pigeons are often shipped in large quantities, but car-loads of live pigeons are very rare.

A Gas Explosion.

Considerable excitement was caused just before 1 o'clock to-day by a loud report which many supposed was that of a locomotive exploding. A rush was made for the railroad yard, when it was ascertained that the gas in the fire-box of engine 272, Chauncey Anderson engineer, had blown open the door of the fire-box. The fireman, George Brown, was at work on the running-board, oiling the engine, and thus escaped the injury that would very likely have resulted had he been in the cab. The engine was not damaged. The fire had been banked in the engine since Saturday, and when the locomotive was run out on the track near the water tank and the fire stirred, the explosion followed. This is the second time a similar explosion has taken place in this engine.—Port Jervis (N. Y.) Gazette, June 6.

Mortality of Brakemen.

The brakemen on our railroads find it quite difficult to get their lives insured. It is estimated that there are at least ten brakemen killed throughout the country every day. The reader of the daily newspaper learns how this class of men are killed or maimed while coupling cars and making up trains, while others are knocked from the tops of cars by bridges, or slip or fall, or are injured or killed in collisions. Then there must be at least three times as many brakemen injured as are killed of whom the public knows nothing about or gets no account.

At the lowest calculation, if ten brakemen are killed every day, that would be equivalent to 3,650 during the year, which, added to the number injured in various ways while on duty, would give the sum total of deaths and injuries about 14,600 a year. These are frightful figures of a fatality, a loss of life or injury to the body, that is attributable either to accidents, carelessness or negligence.

We therefore venture to assert that it is a fact that the public has no idea of the number of accidents that occur on the various railroads throughout the country every day; and it is also true that there is no vocation so fraught with danger to life and limb as that of the brakemen on our railroads, particularly on freight trains, men on passenger trains having a great many lives entrusted to their care, and consequently have a greater responsibility resting upon them than that which rests with the freight men.

Indeed, the life of a freight brakeman is a precarious one. Some insurance agents, in some parts of the country, do not take risks on employees on freight trains; but conductors and brakemen on passenger trains are insured by their paying an extra per cent. Railroad men say that only about 25 per cent. of the brakemen of freight trains die a natural death; also, that the average life of the brakemen, after he goes on the road, is about ten years.—Boston Commercial Bulletin.

Selling a Railroad.

It is just as easy to auction off a railroad as it is to sell a chair or a bedstead to the highest bidder, the people who want the former saying "500,000" or "600,000" with as little effort as one at the latter cries out "50" or "60 cents." That this assertion is true was demonstrated at the north door of the custom-house at 10 o'clock Tuesday morning, when the Chicago, Pekin & Southwestern Railroad was disposed of in about five minutes for \$750,000. This is the way it was done by Master in Chancery Sherman:

"I now offer for sale," said Mr. Sherman, "the property named in the decree, the sale to be for cash, except in case the owner of the second mortgage bonds becomes the purchaser. He may deposit bonds to a certain amount in lieu of money, according to the decree."

"Are you ready for a bid?" asked Judge Cothran.

"I am," replied the master.

"\$250,000," said the judge.

The master looked at him inquiringly.

"I bid for myself," said the judge.

"Do I hear any other bids?" asked Mr. Sherman.

"\$450,000," said Mr. Barry.

"\$450,000!" Do I hear any more?"

"\$600,000," replied the judge.

"\$600,000! Any further bids?"

"\$650,000," said Mr. Hinckley.

"\$650,000, \$650,000," said the master.

"\$700,000!" said the judge.

"\$750,000!" said Mr. Hinckley.

"\$750,000 by Mr. Hinckley," said Mr. Sherman, who began to wake up. "Gentlemen, you don't pick up railroads every morning. \$750,000! They are somewhat scarce in the market now. Do I hear any further bids? \$750,000! Are there no further bids? \$750,000 for the Chicago, Pekin & Southwestern. Do I hear any further bids? \$750,000! Are you all done, gentlemen? \$750,000 is the highest bid. Do I hear any more? (Here the master consulted Mr. Campbell again.) "Are you all done?" he went on; "\$750,000, once; \$750,000, twice; last call, \$750,000."

There was no other bid, and the master said:

"The property is sold to F. E. Hinckley for the sum of \$750,000, of which all take due notice, and the sale is for cash, except the bonds are produced."

As there was no necessity for going after an expressman to haul the purchase home, the crowd didn't have the satisfaction of seeing the road loaded up; and, as the master and purchaser and his attorney went into the building and the other interested parties scattered, the lookers-on, realizing that they could waste no more time in that place, went on their way in search of something else to stare at.—Chicago Tribune.

OLD AND NEW ROADS.

Atlanta & West Point.—The directors of this company, at a meeting held in Atlanta last week, resolved to make a dividend of 100 per cent. to stockholders in debenture certificates bearing 6 per cent. interest and redeemable at the option of the company after 1891. The company has no debt, and its stock is \$1,232,000, or \$15,210 per mile. The expectation is that the company will be able to pay the interest on the debentures and continue to pay regular divi-

dends of 8 per cent. as heretofore on the stock, thus returning 14 per cent. to the stockholders.

Augusta & Knoxville.—A dispatch from Augusta, Ga., June 8, says: "The Richmond & Danville Company made a proposition to-day to the authorities of this city for the city's stock in the Augusta & Knoxville Railroad. The Richmond & Danville Company agrees not to require a transfer of the stock until a necessity shall arise for placing a mortgage on the completed road; when such transfer is made satisfactory security to be given to the city; stock in the consolidated line equal in value to that transferred to be issued to the city; the road to Greenwood to be completed by the present management; the road to Elberton to be completed within two years from the completion of that to Greenwood; suitable provision to be made for the payment of the present bonds of the Augusta & Knoxville road; no unjust discrimination to be made against the city of Augusta. The City Council will consider the proposition next Tuesday, together with one from the Virginia Midland Railroad Company, and will accept that which is deemed best for the interests of the city."

Black Hills & Custer City.—Work has been begun on this road at Deadwood, Dakota. It is to run from Deadwood to Custer, with a branch to Rapid City. The total distance is about 75 miles; it is built by the Homestake Mining Company, it is said, principally to furnish timber and fuel for their mines and mills, which must be of enormous extent to justify the building of 75 miles of railroad.

Boston & Maine.—The Dover & Winnepesaukee Company, whose road this company controls and leases, has given formal notice of application to the New Hampshire Legislature for authority to extend its road from Alton Bay along the shore of Lake Winnepesaukee to Weirs, on the Boston, Concord & Montreal, about 18 miles, with a branch to Laconia. The application will be opposed by the Concord and Boston & Lowell companies.

Boston & Winthrop.—This company has been organized to build a branch 1½ miles long from the Boston, Winthrop & Point Shirley road at Pleasant street station, in Winthrop, Mass., to and along the beach, returning to the Point Shirley road at Ocean Spray station.

Canada Central.—Agreements have been completed for the transfer of this road to the Canadian Pacific Company.

Cape May & Sewell's Point.—Work is now in progress on this road, which is to run from the West Jersey at the Sea Breeze House, Cape May, to Cape May Point, about three miles.

Central of Georgia.—In relation to the scrip dividend already announced, Savannah dispatches state that at a meeting of the board, held June 1, a resolution was adopted that certificates of indebtedness be issued, bearing date of July 1, 1881, to the holders of stock of the Central Railroad & Banking Company, at the rate of \$40 per share, and to the holders of the Southwestern Railroad Company stock at the rate of \$32 per share, said certificates to be payable at such time as may be determined upon by the board of directors; but no certificates to be called in until July 1, 1891; interest at the rate of 6 per cent. per annum, to be paid on Jan. 1 and July 1 of each year.

Central of New Jersey.—On May 30 this company made a radical change in the hand and whistle signals used on the road, and adopted a new code. This was done to conform as nearly as possible to the signals in use on the roads with which they were closely connected, viz., the Pennsylvania and Philadelphia & Reading, and at the same time gave them an opportunity to adopt a uniform system on their leased lines and branches, the signals of which, prior to that time, had not been alike.

A dispatch from Philadelphia, June 8, says: "The board of directors of the Pennsylvania Railroad Company, at a meeting held this afternoon, ratified the contract entered into by that company with the Wabash, St. Louis & Pacific Railroad and the Central Railroad of New Jersey. Under the provisions of this contract, the Pennsylvania Railroad Company will transport all freight and passenger traffic that may be delivered to it at a point near Milton, Pa., over the lines of the Philadelphia & Erie Railroad to Driftwood, and thence over the Low Grade Division of the Allegheny Valley Railroad to Red Bank, from which point the Wabash will build a road to Youngstown, whence connection will be made with the Wabash system. The Pennsylvania Railroad Company will furnish the motive power and track, and will transport all business offered by the new line between Milton and Red Bank, receiving as compensation its *pro rata* proportion of existing through rates, according to distance. This arrangement will not interfere or impair the local traffic of the Pennsylvania Railroad Company, which is amply protected under this contract. It applies only to such through trade as may be interchanged by the lines."

Central Pacific.—The Salt Lake (Utah) Herald reports that this company's engineers have nearly completed the survey of a line from Wells, Nev., to Salt Lake. Wells is 219 miles west of Ogden, and a line from that place to Salt Lake would be about 225 miles long.

Cheraw & Chester.—A majority of the stock of this road has been sold to the Richmond & Danville Company. The transfer has been delayed by litigation over the issue of \$75,000 stock to Chester County, S. C., under the agreement made with that county.

Chesapeake & Delaware Canal.—The following statement for the year ending May 31, has been made by this company, whose canal connects the lower Delaware River with Chesapeake Bay:

Balance, June 1, 1880.....\$53,795.79
Receipts from tolls.....161,530.69
" other sources.....18,371.79

Total.....\$233,698.27
Expenses, including interest.....186,005.55

Balance, June 1, 1881.....\$47,692.72
The company has decided to make no change in the various steam lines which it controls.

Chicago, Burlington & Quincy.—The Boston Advertiser says: "This company is just now perfecting arrangements for the immediate construction of a branch line from the Fox River to Sterling, and another from Kewanee to Sterling, and another from Galva to Sterling. It is the object of the Burlington people to push these lines further north into the territory of the Milwaukee & St. Paul. The Burlington people say they are compelled to do this as a matter of self-defense, because the Milwaukee & St. Paul is constantly encroaching upon their territory, and is building lines southward in the same territory."

Chicago, Milwaukee & St. Paul.—At the recent annual meeting the stockholders voted to authorize an issue of \$5,000,000 new common stock for the purpose of building extensions, improvements, etc. It is reported that this stock will soon be offered to the present stockholders for subscription.

Chicago & Northwestern.—The following is published as an approximate statement of gross earnings for the year ending May 31:

	1880-81.	1879-80.	Increase.	P. c.
Passengers.....	\$3,610,469	\$3,274,508	\$335,961	10.3
Freight.....	13,144,042	11,965,075	1,178,967	9.8
Other.....	637,090	642,693	5,603	2.2
Total.....	\$17,411,607	\$15,912,876	\$1,498,731	9.4
Proprietary roads.....	1,907,135	1,436,473	470,662	32.8
Total.....	\$19,318,742	\$17,349,349	\$1,969,393	11.4

The statement of expenses will not be made up for some time yet.

Chicago, Portage & Superior.—Surveys have been begun for the line of this proposed road from Superior, Wis., to the North Wisconsin crossing, about 63 miles.

A mortgage has been recorded in Wisconsin by this company to the Farmers' Loan & Trust Company, of New York, to secure an issue of bonds at the rate of \$20,000 a mile, or \$8,000,000 in all, on the 400 miles projected from Chicago to Superior.

Chicago, St. Paul, Minneapolis & Omaha.—The new consolidated mortgage for \$30,000,000 has been executed and filed for record. Part of the issue is to be used to retire existing obligations of the company, the balance as required for the construction of new roads and the purchase of existing lines.

Articles of incorporation have been filed for a branch of this road to run from Eau Claire, Wis., to Chippewa Falls, on the west side of the river. The object is to secure a share of the heavy lumber business which now goes to the existing road on the east side of the Chippewa River. The branch will be about 12 miles long.

Chippewa Falls & Minneapolis.—This company has filed articles of incorporation to build an extension of the Wisconsin & Minnesota Branch of the Wisconsin Central from Chippewa Falls, Wis., to Minneapolis, Minn., about 95 miles.

Cincinnati Southern.—The following statement is made by the trustees for the quarter ending March 31:

Net surplus received from Operating Co.....	\$200,560.93
General expenses and taxes.....	\$11,518.38
Bridge Department expenses.....	2,907.80
Maintenance of way.....	76,469.50
	90,685.77
Net income.....	\$109,884.16

The net income is \$30,278.33 less than that for the preceding quarter, the amount paid over by the Operating Company for the quarter ending Dec. 31, 1880, having been \$82,321.17 more than in the last quarter, while the expenses for that quarter were \$52,042.84 greater.

Cincinnati, Van Wert & Michigan.—This road is now in operation from Van Wert, O., southward to Shane's Crossing on the Toledo, Delphos & Burlington road, 12 miles. It has been lately completed.

Cleveland, Columbus, Cincinnati & Indianapolis.—This company has made arrangements for a through line of Pullman cars between Cleveland and New Orleans over its own line to Indianapolis, the Indianapolis & St. Louis to Greencastle, the Louisville, New Albany & Chicago to Louisville and the Louisville & Nashville lines to New Orleans.

Cleveland, Youngstown & Pittsburgh.—This company has been organized to build a branch of the Connotton Valley road from Twinsburg, O., to Youngstown, about 35 miles.

Columbus & Western.—The Talladega (Ala.) Reporter says: "Instructions have been given to the Chief Engineer of this road to proceed immediately to survey the route from Goodwater (the present terminus) to cross the Coosa a little above old Fort Williams so as to connect with the Shelby Iron Works road, which has been extended down nearly to the Coosa. This will give them 14 or 15 miles of graded road from there to Columbiana, where they will cross the Selma, Rome & Dalton road, thence to Siluria, where they cross the South & North; thence to Jonesboro, where they cross the Alabama Great Southern road; thence direct to Lost Creek, in Walker County; thence to deep water on the Tennessee at or below Tusculumbia. Such, we are informed, is the general line to be surveyed. The work of survey has already begun."

Denver & Rio Grande.—On the San Juan Division trains are now running to Amargo, Col., 22 miles westward from the late terminus at Chama, 86 miles from Antonito, and 365 miles from Denver.

The Silver Cliff Branch is now completed to West Cliff, Col., 18 miles beyond the late terminus at Soda Springs and 35 miles from Cañon City.

The New River Branch has been opened for business to Robinson, 15 miles northward from Leadville, and 294 miles from Denver. This track, we believe, was laid last year.

The Salt Lake Herald reports that this company has secured control of the Utah & Pleasant Valley road (from Bovo on the Utah Southern to the Pleasant Valley coal mines, 60 miles), and that preparations are being made to extend the road from Provo to Salt Lake at once. This, it is reported, is only in preparation for the building of an extension next year which will connect the road with one of the Denver & Rio Grande lines in Colorado, making a through line from Salt Lake to Denver.

Fulton County Extension.—This company has filed articles of incorporation for a line from Fairview in Fulton County, Ill., east to Peoria, about 30 miles. Also for two lines from Fairview to the Mississippi, one by Monmouth to a point opposite Burlington, Ia., and one by Galesburg to Rock Island.

Galveston, Harrisburg & San Antonio.—Work is progressing on the extension of this road from San Antonio westward, and track is now laid to Leon, Tex., nine miles from San Antonio. To this point the track runs parallel with that of the International & Great Northern road.

Galveston & Pacific.—This company has been organized to build a narrow-gauge road from Galveston, Tex., westward about 150 miles to Victoria and thence southwest about 200 miles to Camargo, with a branch from Victoria northwest to San Antonio, about 100 miles. Books of subscription to the stock were to be opened this week.

Georgia & Pacific.—This is the name under which has been organized the company which is to build Gen. Gordon's proposed line from Atlanta west to Birmingham, Ala., and thence to Columbus, Miss. The company has bought the charter and graded road-bed of the old Georgia Western Company, and is now at work on 30 miles out of Atlanta.

Grand Trunk, Georgian Bay & Lake Erie.—This company has been formed by the consolidation of the Stratford & Huron, the Port Dover & Lake Huron and the Georgian Bay & Wellington companies. The completed road owned by the consolidated company extends from Port Dover, Ont., to Listowel, 90 miles, and is to be extended 70

miles further, from Listowel to Warton. It is leased and worked by the Grand Trunk.

Hamlet & Bennettsville.—Surveys have been completed for this road, which is to extend from Hamlet, N. C., the junction of the Raleigh & Augusta, and the Carolina Central roads, south to Bennettsville, S. C., a distance of 18 miles. It will be a branch of the Raleigh & Augusta road.

Indianapolis & Evansville.—This company, it is reported, has contracted for English steel rails for its road and will begin laying track from Evansville, Ind., to the Ohio & Mississippi crossing when they arrive.

Intercolonial.—A dispatch from Halifax, N. S., May 31, says: "The long talked of extension of the Intercolonial Railway into this city is now to be at once proceeded with. Sir Charles Tupper, Minister of Public Works, and the Superintendent and engineers of the railway are now in town. The line will be carried from Richmond along the lower side of Water street into the south end of the Imperial naval yard, Vice-Admiral Sir Leopold McClintock having granted nearly an acre of the yard. The line will be continued along the water front, and a terminus, with over 1,000 feet of deep water frontage, will be made with the wharves. A grain elevator, sheds and everything necessary for carrying on the rapidly increasing freight business will be erected. The extension will be 2½ miles in length, and will be continued along the whole harbor front of the city as fast as the merchants give the right of way through their property. The purchase of properties alone will involve the expenditure of some hundreds of thousands of dollars, and the whole work will cost \$1,000,000 or more."

International & Great Northern.—The track is now reported laid to Chican, Tex., 38 miles west of San Antonio. The grading parties are nearly 60 miles from San Antonio, and the tracklaying is progressing as fast as possible.

Kansas City, St. Joseph & Burlington.—This company has filed articles of incorporation in Missouri, covering the line of the Burlington & Southwestern road in that state with an extension of about 60 miles from Laclede, southwest to Lexington, and a line from Unionville, west about 50 miles, to connect with roads leading to St. Joseph. Provision is also made for an extension from Lexington, south. It is understood to be a reorganization of the Burlington & Southwestern, in the interest of the Chicago, Burlington & Quincy. The incorporators are Isaac P. Burr, W. W. Crapo, William Endicott, Jr., S. A. Kent, J. B. Lyon, Thomas Nickerson, James W. Potter, W. J. Rotch, Henry Savin, Elijah Smith, John W. Smith, Prosper W. Smith, H. W. Suter and Moses Taylor.

Kentucky Central.—A dispatch from Cincinnati, June 4, says: "Albert Netter, a broker, yesterday closed negotiations by which a syndicate of Eastern and Ohio capitalists bought the controlling interest in the Kentucky Central Railroad. The purchasers are George W. Ballou, of Boston, George I. Seney, Samuel Thomas, C. S. Brice, E. H. R. Lyman and John L. Martin. The price paid is 60 cents on common stock, and par for preferred. The amount bought is \$3,800,000, the whole amount being \$5,000,000."

The parties mentioned in the dispatch are largely interested in the Ohio Central. Several of them are also in the syndicate which lately took a large interest in the East Tennessee, Virginia & Georgia road.

Lehigh & Hudson River.—The Pequest & Wallkill Company, whose charter covers part of the line of this road, has been consolidated with this company, the name remaining unchanged. Work is progressing steadily on the line from Belvidere, N. J., to Andover on the Sussex road.

Manchester & Keene.—In the suit of this company against the city of Keene, N. H., the referees have decided that the company is entitled to recover from the city for aid promised, \$128,951.58, with interest from Dec. 8, 1878. The city has taken exceptions to the confirmation of the report.

Mayville Extension.—This company has filed articles of incorporation to build a branch of the Buffalo, Pittsburgh & Western road from Mayville, N. Y., to Fair Point, on Chautauqua Lake, about three miles.

Memphis, Paducah & Northern.—A dispatch from Louisville, June 5, says: "In the United States Court yesterday Judge Barr, at the instance of the foreign bondholders, ordered the sale of the Memphis, Paducah & Northern Railroad."

This road was formerly the Paducah & Memphis, and was sold under foreclosure April 30, 1877, and bought by the bondholders, who organized the present company. The road owned is in two sections, from Paducah, Ky., to Trimble, Tenn., 77 miles, and from Memphis, Tenn., to Covington, 38 miles, with a gap of about 50 miles between the two sections.

Midland, of New Jersey.—A special meeting of the stockholders of this company was to be held on Friday, June 10, to decide upon a joint agreement entered into by the directors of the Midland Railroad Company of New Jersey, the Paterson Extension Railroad Company, the Midland Connecting Railway Company, the North Jersey Railroad Company, the Water Gap Railroad Company, and the Pennsylvania Midland Railway Company, under the corporate seals thereof, respectively, for the consolidation of said companies and railroads.

Work is progressing rapidly on the Paterson Extension, the branch to the new depot in Paterson. A large part of the grading is done, and rails are being laid on the long Y connecting the branch with the main track.

Missisquoi & Black Rivers.—Contracts have been let for the completion of this road from Richmond, P. Q., on the Grand Trunk, southward to the Vermont line near Masonville, a distance of 56 miles. About 10 miles of the road were built several years ago, near the middle of the line.

Missouri, Kansas & Texas.—The Commercial and Financial Chronicle says: "The lease of the Missouri, Kansas & Texas to the Missouri Pacific Railroad Company for 99 years was ratified by the stockholders at their late meeting. The Missouri, Kansas & Texas already had a lease of the International & Great Northern road, and in addition to that lease holds nearly all of the International stock, which it purchased by the issue of its own stock, two shares for one. No copy of the Missouri, Kansas & Texas lease to the Missouri Pacific has been published, but from official sources we learn that the lease is for 99 years; the Missouri Pacific is to operate the road and keep it in repair; the lessee assumes no liability for mortgage interest, but is to apply the net earnings of the road, after all the expenses of operating and maintenance, to the payment of interest on the general consolidated mortgage bonds and all prior liens, and pay over the balance, if any, to the Missouri, Kansas & Texas Company to be applied to the payment of interest on the second-mortgage income, or other bonds, or for such other purposes as the board of directors may deem proper. If there is any deficit in the income, so that it is insufficient to pay the obligatory interest on the mortgage bonds, the Missouri Pacific may, at its

option, advance the necessary amount to pay such interest, and such advances will be a charge against the Missouri, Kansas & Texas Company; or in case of failure to make such advance for a period of six months after interest becomes due, the Missouri, Kansas & Texas Company is to be entitled to possession of the railway and cancellation of lease. Although this lease is for 99 years, it is understood that it is likely to be a temporary arrangement, preliminary to a consolidation of the Gould properties of the Southwest. The foregoing sufficiently explains the press dispatch of June 2 from Palestine, Tex., saying that the Missouri Pacific Railroad had leased the International & Great Northern line for 99 years. This news was about two weeks old, as the lease carried this road with it.

Missouri Pacific in Nebraska.—This company has been organized to build a railroad, which will be an extension of the Missouri Pacific, from Atchison, Kan., up the west side of the Missouri to Omaha, Neb. The road will follow the river as closely as possible. The incorporators are Jay Gould, A. A. Talmage, F. B. Drake, T. M. Smith, John L. Webster.

Mobile & Alabama Grand Trunk.—A plan of reorganization has been agreed on, under which holders of present bonds are to pay an assessment of \$300,000 per \$1,000 bond, and receive for each old bond \$800 in new first-mortgage bonds, \$500 in second-mortgage income bonds and \$300 stock. Holders of the present stock will pay an assessment of \$5 per share and receive the par value of their old stock in new stock, and income bonds for the amount of the assessment paid. Holders of floating debt claims will receive 50 per cent. of their claims in income bonds. The cash received from assessments will be used in putting the road in repair and buying equipment. For the extension of the road it is provided that new securities may be issued at the rate of \$15,000 first-mortgage bonds, \$15,000 income bonds and \$30,000 stock per mile of new road.

Montgomery Southern.—Contracts have been let for the building of the first section of 10 miles of this road from Montgomery, Ala., southward.

Nashville, Chattanooga & St. Louis.—President Porter, of this company, is now negotiating for an extension of the Tennessee & Pacific Branch from Lebanon, Tenn., by Gordonsville, Gossville, Wartburg and Clinton to Bristol, to connect with the Norfolk & Western road. By this route Bristol is 268 miles from Nashville and 240 from Lebanon; the line will open up some good country and some valuable coal deposits.

New Orleans Pacific.—This company has secured for terminal purposes a tract of land 2,500 ft. on the river and 300 ft. deep on the west side of the Mississippi opposite New Orleans, at a nominal price.

At a meeting of the directors in New Orleans, May 30, it was resolved to accept the agreement of consolidation with the Texas & Pacific Company. The stock of the company, under this agreement, will be exchanged for Texas & Pacific stock, share for share.

Newport & Maysville.—This company has been reorganized in the Chesapeake & Ohio interest, and it is said that work will be begun at once on the line from Maysville, Ky., along the south side of the Ohio to Newport, opposite Cincinnati.

New York Tunnel Railroad.—This company has been organized to build a tunnel under New York city from the terminus of the Hudson River Tunnel to the Grand Central depot. The line proposed is from Washington Square under University place, Union Square and Fourth avenue.

Northern Pacific.—This company is about to build an additional elevator at Duluth with a storage capacity of 1,100,000 bushels.

It is stated that branches will be built in Minnesota this season from Little Falls to Sauk Centre; from Wadena to Benson, and from Perham to Morris. Contracts on all of them will be let soon.

Northern Pacific, Fergus & Black Hills.—A contract has been let to De Graff & Co., of St. Paul, to build this road (which is in the Northern Pacific interest) from Pelican Lake, Minn., to Fergus Falls, about 25 miles. The St. Paul, Minneapolis & Manitoba Company is building a branch close to the proposed line.

Oregon & California.—London dispatches state that of the \$6,000,000 bonds taken by the syndicate under the late agreement, \$3,500,000 have been already taken, and \$2,500,000 are now offered for subscription. They are 6 per cent. first-mortgage bonds and are to be used to retire existing liens and to extend the road from Roseburg, Or., to the California line.

Owosso & Northwestern.—The Detroit Free Press says that this old project has been revived and negotiations have been concluded for the completion of the section from Owosso, Mich., on the Detroit, Grand Haven & Milwaukee road, northwest to Alma, about 35 miles. This section was graded several years ago. When this is completed, arrangements will be made for the extension to Frankfort, on Lake Michigan, some 45 miles north of Ludington, and over 150 miles from Owosso.

Panama.—It is reported that negotiations have been concluded for the sale of a controlling interest in the stock of this company to the de Lesseps Panama Canal Company. The terms are open to all stockholders, and it is expected that all the stock will be sold. The price to be paid is 250, the company to retain all its assets outside the road, which, it is estimated, will bring enough to pay the stockholders about 45 per cent. more, so that they will receive 295 for their stock (which is now paying 5 per cent. quarterly dividends). As there is \$7,000,000 stock, the purchase will take \$17,500,000, of which \$4,000,000 are to be paid July 1, the rest in five equal yearly installments, with 6 per cent. interest.

Pennsylvania.—The North American, of June 8, says: "President Roberts and Vice-President Smith, of the Pennsylvania Railroad, were in New York yesterday to complete the purchase of the Philadelphia, Wilmington & Baltimore Railroad, of which company 208,446.15 shares of the total of 231,715 were delivered to them by the Boston committee. This committee consisted of Messrs. Henry P. Kidder, Henry L. Higginson, Charles P. Bowditch and William Minot, the last-named two of whom are directors of the Philadelphia, Wilmington & Baltimore. President Roberts handed them a check on the National Bank of Commerce of New York, for \$14,949,052.20, which amount the committee will divide among the stockholders to whom it belongs, all of whom are in Boston."

It will be observed that very few of the stockholders in this city, Baltimore or Wilmington took advantage of the offer, as they mostly held it for investment, and regard it as fully as good, if not a better, investment now than it was before. The authorization of the issue of 400,000 shares of Pennsylvania Railroad new stock at par for old stockholders in the proportion of one for eight shares, and the

recent sales of these allotments are familiar matters, and the statement that the company intended to issue a new loan of \$10,000,000 (in registered 4 per cent. certificates) to raise the money required to make up the sum paid out yesterday is of still more recent announcement. President Roberts paid the money to Mr. Kidder yesterday at the office of Drexel, Morgan & Co., in New York, one of the three firms which have lent the company the \$10,000,000. The other two are Drexel & Co., of this city, and Winslow, Lanier & Co., of New York. It was learned on excellent authority, yesterday, that the new loan certificates will be issued tomorrow.

It is estimated that about \$9,500,000 will be the total raised by the sale of new stock, on a basis of 170,000 shares to the holders of more than eight shares of old, and 20,000 shares to those holding fewer than eight shares of old. The 4 per cent. dividend, when all paid, will amount to \$5,509,816. There was, therefore, in round numbers about \$2,500,000 taken from the company's surplus to make up the amount paid over yesterday.

The check deposited as above stated for the Boston stockholders represents 188,863.15 shares. The balance of the total amount of \$16,675,692.20, or \$1,726,640, represents 21,583 shares, which were forwarded the committee from stockholders here and in Wilmington and Baltimore, who will be paid from this city. The Boston stockholders, parting with their stock, about 2,700 in number, will receive each one a check on the National Bank of Commerce for the respective amounts due them."

A new division has been formed known as the Altoona Division. It includes only the Altoona yard and shops and the Hollidaysburg & Morrison's Cove, Newry, Williamsburg and Springfield branches, in all 54 miles of short branch roads running from Altoona southward to several points in the iron region of Blair County.

Pennsylvania & New England.—The Court of Common Pleas in Philadelphia has dissolved the preliminary injunction restraining this company from making a new contract for the completion of its road, on the ground that no sufficient cause has been shown for enjoining such action.

Petersburg.—Messrs. R. H. Maury & Co., of Richmond, Va., say in their circular that "the Court has directed that the road, instead of being sold, should be returned to the stockholders. The election of Major Myers as President assures continued good and careful management. * * The earnings for the twelve months just ended were \$307,000, against \$222,000 for last year and \$196,000 for the year before. In April, 1881, they were \$53,000, against \$21,979 for April, 1880, and the cash in the Receiver's hands on May 1 was \$27,016. As the line is well located, with easy curves and grades, it is operated at a minimum rate of expense, say about 50 per cent. of its earnings. The debts upon the road, including the preferred stock and accrued interest, are something over \$1½ millions, requiring an interest account of about \$120,000. Without estimating for the large increase of traffic business, which each year is sure to bring, and taking the earnings as they are, we would have, after deducting one-half for operating expenses and \$120,000 for interest account, \$33,000 applicable as dividends upon the \$1,000,000 of common stock; or, if business increases only next year as it did last, there would be \$118,000 for dividends—over 11 per cent."

This estimate appears a very sanguine one. It is not at all likely that the extraordinary increase reported last year will continue. The road will do very well if it continues to earn as much as last year. The reported expenses have been as high as 73 per cent. of earnings.

Philadelphia & Long Branch.—Track is now laid on this road from Whiting's Junction, N. J., eastward toward the sea shore 10 miles, and trains are running upon it regularly to Tom's River, nine miles from Whiting's. The road is operated by the Pennsylvania Railroad Company as part of the Amboy Division; it is an extension of the Pemberton & Sea Shore road.

Philadelphia & Reading.—The Special Master has reported to the Court his audit of the Receiver's accounts for April, as follows:

	Railroad Co.	Coal & Iron Co.
Balance, April 1.....	\$ 513,099	\$ 29,657
Receipts for the month.....	5,066,479	1,113,896
Total.....	\$5,579,578	\$1,143,553
Disbursements.....	5,331,155	1,141,181
Balance, May 1.....	\$248,423	\$2,372

The Pennsylvania Supreme Court having refused to grant the petition for a rehearing in the contested election case, Mr. Gowen has finally acknowledged Mr. Bond and his associates as the legally elected President and board of managers. Mr. Bond has received the books and papers belonging to his office and the seal of the company, and all transfers hereafter will be made through his office. The active management of the road of course remains with the Receivers.

A movement will be made to have Mr. Gowen removed from the receivership; its result is uncertain. Mr. Gowen is still President of the Coal & Iron Company, and claims to control enough stock already to make him President of the railroad company again next January.

All the plans for settlement of the debt are, of course, in suspense, until the new board are settled in office and have time to consider the subject.

It is proposed to build a branch from Gordon, on the Mahanoy & Shamokin Branch, by way of Gratzville to Donaldson, about 11 miles. This branch would reach several new collieries.

Port Huron & Northwestern.—Work has been begun on an extension of the Marquette Branch from Marquette, Mich., west by north to East Saginaw, about 45 miles. The right of way has been secured.

Richmond & Allegheny.—The Baltimore Sun says: "A deed from the Richmond & Allegheny Railroad Company, conveying all their property, right and franchises to Green and Bock, trustees, to secure \$4,000,000 of second-mortgage bonds, was recorded in the clerk's office of the Chancery Court at Richmond, Va., Wednesday. It is said that this deed was ordered two or three months ago, pending negotiations with the Pittsburgh Southern Railroad people, to enable the Richmond & Allegheny Railroad Company to build their road to the junction at the West Virginia state line. These negotiations are still pending, and will be reopened by the consolidated companies. It is understood that it is not intended to put the bonds upon the market unless the Pittsburgh connection is ordered, but that it was necessary to record the deed before the consolidation takes effect, and becomes absolute."

The consolidation referred to is that with the Ohio Central, which is not yet ratified, but probably will be.

Rochester & Windsor Beach.—This company has filed articles of incorporation to build a railroad from Rochester, N. Y., to Irondequoit Bay, Lake Ontario. The distance is nine miles.

St. Louis, Ft. Scott & Wichita.—The grading of this road is now completed from Ft. Scott, Kan., west to Iola,

about 48 miles, and track has been laid from Ft. Scott west 15 miles. Tracklaying has also been begun from Iola eastward.

St. Louis & San Francisco.—This company has opened a new line between St. Louis and Kansas City by way of Springfield, Mo., and the Kansas City, Ft. Scott & Gulf road. The distance between the two cities by this route is 434 miles, against 323 miles by the Chicago & Alton, 283 by the Missouri Pacific and 277 by the Wabash, St. Louis & Pacific.

St. Paul, Minneapolis & Manitoba.—Regular trains have begun to run over the Grand Forks, Fargo & Barnesville Branch, locally known as the West Side line, from Fargo to Grand Forks, 75 miles. This line was completed a few weeks ago. It is to be extended northward down the Red River from Grand Forks.

Work has been begun on a line from Carlisle, Minn., on the Fergus Falls Division, east to Pelican Lake, 25 miles. This line is to run to Wadena on the Northern Pacific, 50 miles from Carlisle, and is parallel and close to the proposed Northern Pacific, Fergus & Black Hills road.

Scioto Valley.—The following circular has been issued by Mr. John J. Archer, General Freight and Passenger Agent, under date of May 26: "The extension of this line to Ashland, Ky., is completed, and now open for business. Passenger trains run through to Ashland, Ky., connecting with trains of Chesapeake & Ohio Railway, at Union depot at that point, where passengers also change for all points on Chattahoochee and Elizabethtown, Lexington & Big Sandy Railroad west. Car-load freight is sent through to Richmond and all points on Chesapeake & Ohio, Elizabethtown, Lexington & Big Sandy and Chattahoochee railroads without breaking bulk. This supplies a long-felt want, an all-rail connection with the Chesapeake & Ohio Railway."

Securities on the New York Stock Exchange.—The following securities have been put on the lists at the New York Stock Exchange:

Georgia Railroad & Banking Co., \$4,200,000 capital stock.

Texas & Pacific, \$1,725,000 first-mortgage 6 per cent. gold construction bonds, Nos. 5,001 to 6,725.

Louisville & Nashville, \$2,000,000 sinking fund 6 per cent. bonds.

Houston & Texas Central, \$3,000,000 general-mortgage 6 per cent. gold bonds, Nos. 1 to 3,000.

Ohio Southern, \$3,840,000 stock, \$1,920,000 first-mortgage bonds, and \$1,920,000 second-mortgage income bonds.

Indianapolis, Decatur & Springfield, trust certificates of the Central Trust Company, issued in exchange for the old second-mortgage bonds.

Southern Pacific.—A dispatch from Santa Fe says that the Texas & Pacific Company has begun suit there to restrain the Southern Pacific Company from operating and using its road from the San Simon River at the New Mexico line to El Paso. The ground of action is that part of the road has been built on the Texas & Pacific land grant, and that the company had no right to build further than the eastern line of Arizona.

Texas & New Orleans.—It is reported that negotiations are in progress for the sale of this road to Jay Gould. It is 108 miles long and is the Texas end of the line from Houston to New Orleans.

Tioga.—It is proposed to extend this road from its present terminus at Arnot, Tioga County, Pa., southward about 35 miles to Pine Creek on the Philadelphia & Erie road. The object is to secure a southern outlet for the coal mines served by the road.

Ulster & Delaware.—It is said that work will soon be begun on the extension of this road from Stamford, N. Y., westward to Oneonta on the Albany & Susquehanna road. The distance is 26 miles, and part of it was graded several years ago.

Vicksburg, Shreveport & Pacific.—It is reported that this road has been sold to Mr. Fred. Wolf, the representative of the Erlanger syndicate, which owns the Alabama Great Southern and is reported to control the Vicksburg & Meridian. The new owners will complete the road from Monroe, La., to Shreveport.

Wallkill Valley.—Negotiations are pending for the sale of the controlling interest in this road to the construction company which is building the New York, West Shore & Buffalo road. The road can hardly be used as part of the new line, but it owns some right of way and unfinished work north of Kingston. It extends from Montgomery, N. Y., to Kingston, 38 miles.

Water Gap & Schuylkill.—This company has been organized to build a railroad from Pottsville, Pa., to the Delaware Water Gap, about 65 miles. The probable intention is to connect with the New Jersey Midland Extension.

Waxahachie Tap.—This short road running from the Houston & Texas Central road near Ennis west to Waxahachie, Tex., has been sold to the Houston & Texas Central Company. It is said that it will be extended westward to a point not yet determined.

Westchester.—The parties who bought the New York, Housatonic & Northern road at foreclosure sale have organized the Westchester Railroad Company, and propose building the road from White Plains, N. Y., on the Harlem road to Brookfield, Conn. The new company succeeds only to the right of way and unfinished road, the completed section from Brookfield to Danbury having been sold to the Housatonic Railroad Company.

Western Union Telegraph.—At a meeting of the Executive Committee in New York, June 8, the following statement was presented for the quarter ending June 30, June partly estimated:

Surplus, April 1.....	\$1,231,968.58
Net earnings for quarter.....	1,836,391.00
Total.....	\$3,068,359.58
Interest and sinking fund.....	\$127,000
New construction.....	75,000
	202,000.00
Surplus.....	\$2,866,359.58
Required for new dividend and payment of dividend already declared.....	2,400,000.00
Balance.....	\$466,359.58

On this statement the Executive Committee recommend to the board the passage of the following:

"Resolved, That a dividend of 1½ per cent. on the outstanding capital stock of this company be and is declared out of the net revenues of the quarter, payable on such date as may hereafter be fixed by this board or the Executive Committee."

"Resolved, That a sum equal to 1½ per cent. upon the outstanding certificates of indebtedness of this company, to correspond with the dividend above declared, be paid to the holder of the said certificates, whenever advised that no restraint of law prohibits the payment of the same."